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THE UNIVERSITY OF ALBERTA

A COORDINATED HOME CARE PROGRAM:
PROJECTED REFERRALS FROM
EDMONTON HOSPITALS

by



PATRICIA M. HAY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN
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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "A Coordinated Home Care Program: Projected Referrals from Edmonton Hospitals," submitted by Patricia M. Hay in partial fulfillment of the requirements for the degree of Master of Health Services Administration.

ABSTRACT

The study was undertaken to determine the potential need of the hospitalized patient for services of a coordinated home care program (CHCP) in Edmonton; and to identify, in order of priority, the services which would be required. The purpose was to obtain baseline data which would be useful to government and community authorities for CHCP planning and decision making purposes.

The study was randomized by survey day and patient selection, with the sample being composed of 10% of the total discharged patients from each of four large general hospitals in Edmonton. Thirty-five percent of the total discharges were excluded from the study since they were (1) non-residents of Edmonton, (2) newborns discharged with their mothers, or (3) expired patients. A questionnaire, completed by physicians on their selected sample patients, was used for data collection. The average rate of return of the questionnaire was 89.1%, which provided 583 patients in the sample. Nineteen percent (111) of the sample qualified as likely candidates for CHCP services, based on the attending physician's consistent responses to any set of paired questions. Indications were that approximately one-third (38) of the referral patients might have had their admissions averted had these services been available, while an additional 38% (42) could have been discharged on an average of 1-3 days earlier.

The nineteen percent referral rate is higher than rates reported in the literature; this could be due to the research design, since the referrals were being made to a hypothetical program, and the eligibility of the patient was assessed only on the basis of his

medical condition, and did not include restrictive admission criteria. However, as there is no basis for truly valid comparisons with referral rates in other programs, it would be tenuous to assume that the referral rate found in this study was "unduly" high.

Indications were that physicians perceived that all the major services usually offered by a CHCP were needed in Edmonton. Visiting nurse service was by far the greatest in demand, being required by approximately 70% of the referrals.

The level of significance used in all hypothesis testing was set at .05. According to this criterion, the referral rates of the four hospitals were assumed to be equivalent. Indications were that the location of residence, marital status, and sex of the patient were not determining factors in referral. Other statistical tests indicated that the older the patient, and also the longer the hospitalization, the greater the likelihood of referral to a CHCP. Although there was no significant statistical difference in the referral rates based on marital status or sex of the patient, indications were that more women than men were hospitalized, a factor which would imply that numerically more women than men would require CHCP services.

Although the study was based only on physicians' assessments of patients' eligibility for referral to a CHCP, it was concluded from the referral rate that the services of a CHCP were needed by a meaningful proportion of patients, and that a CHCProgram would therefore be a valuable adjunct to the health care of Edmonton residents.

DEDICATION

To my Mother and in memory of my Father whose love, guidance and steadfast belief in my capabilities through the years have enabled me to reach this present goal.

ACKNOWLEDGEMENTS

Acknowledgement and the appreciation of the writer is extended to all the unidentified hospital personnel, particularly the medical records staff and the physicians whose assistance and cooperation made this study possible. Recognition must also go to the medical directors in the four hospitals for the interest shown and the help provided the investigator.

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CHAPTER I

INTRODUCTION

A coordinated home care program is one that is centrally administered, and through coordinated planning, evaluation, and follow up procedures provides for physician-directed medical, nursing, social, and related services to selected patients at home.¹

Coordinated home care programs are being developed in many parts of the country and have proven to be an essential adjunct to the delivery of health care. The feasibility of coordinated home care programs in Alberta became the concern of the investigator when she discovered that, with the exception of a pilot project being conducted in Calgary, home care programs are virtually non-existent. Last year, a cabinet minister in the Alberta government² indicated that the reason for the lack of this type of service is that there is an overabundance of acute hospital beds and adequate support services in the form of auxiliary hospitals and nursing homes.

It is the general consensus of health personnel working in coordinated home care programs that there is no substitute for the type of service offered by such a program.³ Engelmohr states that "the absence of home care programs represents one of the largest gaps in

¹U.S. Department of Health, Education and Welfare, Survey of Coordinated Home Care Programs (Washington: The Department, 1963), Public Health Services Publication No. 1062, 3. This is the definition of coordinated home care programs used in this study.

²Source confidential.

³See Literature Review, Chapter II.

today's spectrum of health care resources."¹ He further reinforces this point by saying "home care should be available..., to meet the definitive medical, nursing, social and psychological needs of that small percentage of patients for whom it is so uniquely suited."²

From the findings of studies in other parts of Canada and the United States, it seemed logical to assume that some patients in the general hospitals in Edmonton would be eligible for transfer if services provided by a coordinated home care program were available to them. How many patients and what kinds of services we did not know, and it is these types of questions which bring us to the focus of the study.

Focus of the Study

Problem Statement

The research problem underlying this study was to determine the number of Edmonton residents discharged from general hospitals in the city who required services from a coordinated home care program.

Context and Purpose of the Study

In order to predict with relative accuracy the need for a coordinated home care program³ in Edmonton, as well as the expected

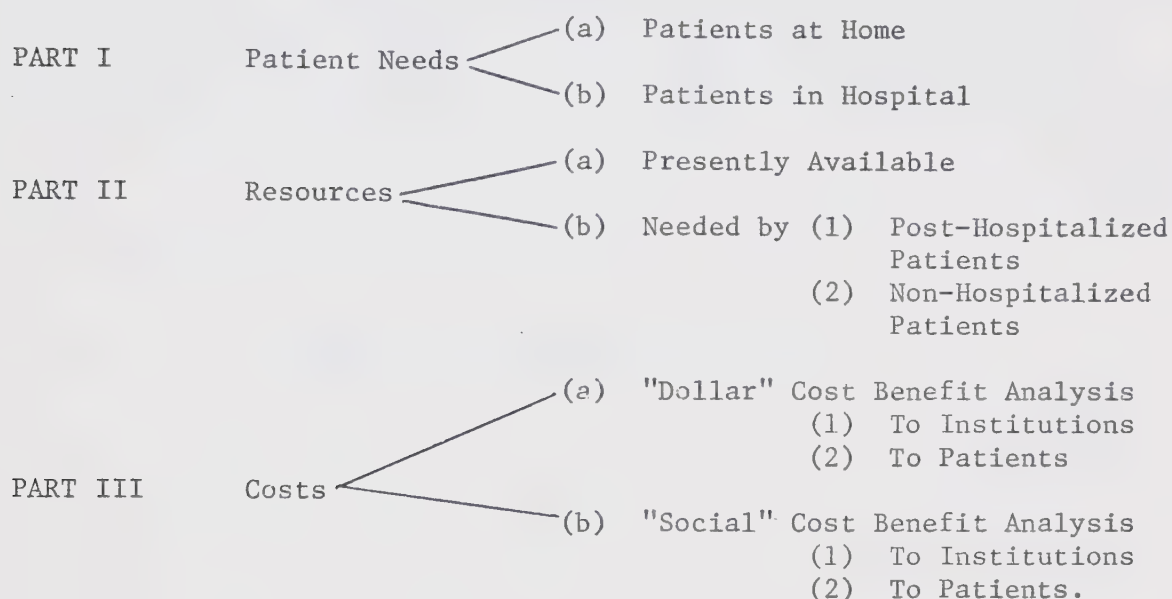
¹Jack H. Engelmohr, "A Self-Contained Home Care Program in a Community Hospital," in The Hospital Patient Outside the Hospital, A Report of the 1966 National Forum on Hospital and Health Affairs (Durham: Duke University, 1966), 10.

²Ibid., 14.

³Hereafter referred to as "CHCP." When referring to more than one program the style will be "CHCPrograms."

demand which would be placed on such a service, health authorities have expressed a desire to have a survey conducted to determine the extent of the need for a CHCP in Edmonton.

For such an assessment, the following areas must be considered.



A community survey was conducted by a core committee of the Preventive Social Services Advisory Committee of Edmonton. They looked at Patient Needs and Resources in relation to Part I (a) and Part II (a) which require investigation.

The study presented here was directed towards evaluating the CHCP needs and resources required for post-hospitalized patients and patients who had not been hospitalized, i.e. toward Part I (b) and Part II (b) 1 and II (b) 2. The purpose was that of obtaining baseline data which could be used in conjunction with the community survey data to assess the overall needs of the people of Edmonton for a CHCP. To complete the Edmonton picture, a cost benefit analysis of providing coordinated home care services for Edmonton residents

in contrast to institutionalizing the patient in an acute or auxiliary hospital or nursing home, should then be carried out (i.e., Part III).

It was anticipated that the combined data from the above mentioned studies would be useful to government and community health authorities for planning and decision making purposes with regard to establishing a CHCP in Edmonton. Inherent in this would be the consideration of the financial and administrative involvement of government and community, as well as the patient capacity and scope of services of such a program, if it were established in the city.

Hypotheses and Descriptive Data¹

To facilitate a comprehensive report of the collected data, both descriptive and inferential statistics were employed. The descriptive data (i.e., frequencies, measures of central tendency, and measures of dispersion) were utilized for reporting the following:

- (1) Patients
 - (a) age
 - (b) sex
 - (c) marital status
 - (d) city district of residence
 - (e) length of stay in hospital
 - (f) services needed

¹See Chapter IV for detailed discussion and presentation of inferential statistics employed in explicating hypotheses.

- (g) length of time care required in a CHCP
- (h) diagnosis
- (2) Hospitals
 - (a) number of discharges
 - (b) discharges eligible for the study
 - (c) days saved or averted by referral
- (3) Physicians
 - (a) proportion favoring a CHCP in Edmonton
 - (b) proportion referring patients to a CHCP

Inferential statistics were used to test the following null hypotheses:

H1 - There is no difference in the proportion of referred and non-referred patients to a CHCP.

H2 - There is no relationship between the length of hospitalization and the likelihood of referral to a CHCP.

H3 - There is no relationship between sex and the likelihood of referral to a CHCP.

H4 - There is no relationship between age and the likelihood of referral to a CHCP.

Limitations

The study was limited to Edmonton residents, discharged from the four general hospitals in Edmonton during a ninety day period. Other hospitals, physicians, and patients may differ significantly from those involved in the study population, therefore, it would be

tenuous to generalize the findings of this study beyond the population sample.

Definitions

Definitions Pertaining to Patients

The definitions pertaining to patients were as follows:

Discharged patient: a live patient who has been officially released by the hospital.¹

Patients eligible for inclusion in the CHCP survey: all patients who live within the Edmonton city limits with the exception of newborns who are discharged with their mothers.²

Patients eligible for referral to a CHCP: those hospitalized patients who meet all the criteria stated in the study.³

CHCP referral rate: the "numerical proportion prevailing,"⁴ between the number of patients referred to the CHCP and the number of questionnaires completed.⁵

¹Dominion Bureau of Statistics, Hospital Statistics, Hospital Indicators (Vol. VII; Ottawa: Queen's Printer, 1968), 14. The definition used as distinguished from the term "separated patient" used to signify the discharge or death of an in-patient.

²The newborn's discharge is closely linked with that of the mother's and therefore, cannot be considered a mutually exclusive discharge.

³The specific criteria are explicated on page 26 in the methodology section under operational definitions.

⁴The Concise Oxford Dictionary, ed. H.W. Fowler and F.G. Fowler (Fifth edition; Oxford: Clarendon Press, 1964), 1021.

⁵Referral figures adjusted to sample size.

Patient needs: "circumstances requiring some course"¹ which in this study refer to the bases for answering the questions of whether or not the patients who are eligible for the survey require services from a CHCP and what type of service is required.

Newborn: "An infant in-patient born alive in the hospital or post natal newborn admitted with [his] mother for maternity care."²

Patient day: "the period of service to an in-patient between the census taking hours on two successive days; the day of admission is counted... the day of separation is not."³

Questionnaire rate of return: the "numerical proportion prevailing"⁴ between the size of the sample and the number of questionnaires completed for this sample.

Definitions Pertaining to Hospitals

For the purposes of this study the definitions pertaining to hospitals were those used by the Dominion Bureau of Statistics:

General hospital: "...[an institution] which provides primarily for the diagnosis and short term treatment of patients for a wide range of diseases or injuries. The services of a general hospital are not restricted to a specific age group or sex."⁵

¹The Concise Oxford Dictionary, op. cit., 806.

²Dominion Bureau of Statistics, op. cit.

³Ibid.

⁴The Concise Oxford Dictionary, op. cit., 1021.

⁵Dominion Bureau of Statistics, Hospital Indicators (Ottawa: Queen's Printer, Jan.-Dec., 1969), xi.

Auxiliary hospitals (Chronic, Convalescent, Rehabilitation): "... [are institutions] which primarily provide for the treatment of conditions requiring long term care or for treatment of patients who are considered to be in the recovery stage of an illness, especially where this is a long term process, and for those patients who are being rehabilitated."¹

Basic Assumption

Since no CHCP as yet exists in Edmonton, hypotheses made regarding relationships and rates of use must be interpreted in that light. That is to say, if a program had already been in existence, physicians' opinions may have varied from the values reported in this study since subjects would have had a more realistic basis on which to assess the usefulness of the program for their particular patients. Thus the overall assumption made in this study was that the information supplied in the questionnaire by the physicians as well as that obtained from the patient's record (Part I) was valid.

Sequence of the Analysis

The study is divided into four main sections: Chapter II contains a review of the relevant literature on coordinated home care programs; a detailed outline of the methodology used in the survey is provided in Chapter III, while Chapter IV contains the presentation and analysis of the data. The summary of this study and the recommendations arising from the study are presented in Chapter

¹Dominion Bureau of Statistics, Hospital Statistics, Hospital Indicators, op. cit., 13.

V. The Appendices include the letters sent to the hospital administrators, medical directors, the suggested letter to the physicians, a copy of the original questionnaire used in the pilot study, a copy of the revised questionnaire, and excerpts of some of the non-coded comments made by physicians on the questionnaire.

We will now direct attention to the basic literature on coordinated home care.

CHAPTER II

REVIEW OF PERTINENT LITERATURE

The review of the literature was a selected one confined to the literature written about coordinated home care programs in Canada and the United States. Because of the abundance of published material on home care programs in many countries, the selection was made on the basis that there is greater similarity between the health delivery systems in Canada and the United States than between Canada and other countries, therefore, the literature could be more accurately related to the situation here in Edmonton.

Impetus for Change in Health Care Delivery

Over the years the attitude of society toward hospital care has changed radically. The hospital is no longer considered a place to die, but rather a place to get well.¹ Discoveries in science and changes in technology have led to the control and treatment of many ailments of man. This has resulted in a lengthened life span which has been reflected in the changing disease pattern of the community.

Medicare is changing the emphasis of health care. With prepaid medical care for all, comes the feeling that it is everyone's inalienable right to health care. More pressure is placed on hospitals and physicians for health services. Unless other approaches to the delivery of health

¹United States Department of Health, Education and Welfare, Survey of Coordinated Home Care Programs (Washington: The Department, 1963), Public Health Services Publication No. 1062, 5.

care to patients are investigated and new methods instituted, health care of patients will suffer. Medicare is one of the mitigating forces which is requiring hospitals, communities, and governments at the local, provincial, and federal level to take a careful look at the health services available. The Report of the Task Force included coordinated home care programs as an essential part in the delivery of health care.¹ Brown says that the reorganization of health care services must come from the government. He sees government as "taking much greater responsibility for programming, planning and ordering the system of care."²

Precipitating Forces in Establishing Coordinated Home Care Programs

Although many articles written about hospital administered programs³ emphasize the needs of the patient as the reason for establishing such a program, they also state that the shortage of hospital beds and spiralling hospital costs have forced them to

¹Department of National Health and Welfare, Task Force Reports on the Cost of Health Services in Canada, 3 (Ottawa: Queen's Printer, 1970), 364-366.

²Howard J. Brown, "Changes in the Delivery of Health Care," American Journal of Nursing, 68 (November, 1968), 2363.

³Essentially there are two basic types of CHCP; those that are hospital-based and those that are community-based, however there are many variations of the two. Hospital-based programs are ones "in which the hospitals and their contained services supported by hospital budgets reach out into the patient's home", while in Community-based programs "services are provided through coordinated community effort." Marion Barter, "The Pilot Home Care Program of Toronto," Canadian Journal of Public Health, 54 (February, 1963), 56.

look for other methods of health delivery.¹ Trager stresses that bed utilization in acute care institutions must be looked at carefully and objectively. It is her feeling that "necessity rather than appropriateness appears to be the motive force in the use of these [beds]."² Littauer, Flance and Wessen have cautioned that "home care per se is not a device to save money on hospital care. Although this goal may be realized ultimately by reducing the need for hospital beds, at present it must be considered as another health benefit that increases the total community bill."³ Engelmohr sums it up very well as he states "when home health services are appropriate for a patient, there can be no substitute. This is a much better argument for home care than the prospect of freeing hospital beds or the factor of cost."⁴ High costs are mentioned in another article and again the program is defended by saying

...costs are justified by the ability of coordinated home care programs to assure high quality patient care at the proper time, at the proper place, and to the required degree for every participant. Further a single administrative

¹Ibid., 55; see also Montefiore Hospital, Home Care Program, Origin, Organization and Present Status of the Extra Mural Program of Montefiore Hospital (New York: Montefiore Hospital, 1949), 1.

²Brahna Trager, "Home Health Services and Health Insurance," Medical Care, 9 (January-February, 1971), 89.

³David Littauer, Jerome Flance and Albert Wessen, Home Care (Chicago: American Hospital Association, 1961), 41.

⁴Jack H. Engelmohr, "A Self-Contained Home Care Program in a Community Hospital," in The Hospital Patient Outside the Hospital, A Report of the 1966 National Forum on Hospital and Health Affairs (Durham: Duke University, 1966), 21.

mechanism is likely to be less expensive to the community than a multitude of such mechanisms.¹

Goldman and Fraenkel are more conservative in their approach when they caution that if a considerable number of severely disabled patients need regular service for an extended period of time, the costs of a program² will rise considerably and the relative merits of home care and institutional care should be questioned.³

Criteria for Admission

"The applicant for Coordinated Home Care neither requires hospitalization nor intensive nursing care, nor can be treated adequately as an out-patient because of his illness or disability."⁴ These criteria are usually among the first used to assess the patient's eligibility for admission to a CHCP.⁵ Other criteria used for assessing whether a patient can be accepted in a CHCP include the following: the patient and his family want the services provided and are willing and able to

¹United States Department of Health, Education and Welfare, A Guide for Development and Administration of Coordinated Home Care Programs (Washington: The Department, 1966), Public Health Services Publication No. 1579, 21.

²Costs of CHCPrograms were not included as part of the present study, however, the investigator has conducted a critical review of the literature regarding the computing and reporting of costs in CHCPrograms and the information is presented in an unpublished article titled Costing Methods in CHCPrograms (HSA-551, University of Alberta, 1972).

³Franz Goldman and Marta Fraenkel, "Patients on Home Care: Their Characteristics and Experiences," Journal of Chronic Diseases, 11 (January, 1960), 85.

⁴Mitchell Roth, Robert Ehinger, and William Mosher, "The Value of Coordinated and Comprehensive Home Care," American Journal of Public Health, 59 (October, 1967), 1843.

⁵U.S. Department of Health, Education and Welfare, (No. 1579) op. cit., 21; Engelmohr, op. cit., 14; Barter, op. cit., 57.

participate in the treatment program; the home conditions are suitable for providing care in the home; the physician wishes this type of service for his patient.¹

Nearly every program discussed in the literature has a controlling device for deciding which patients will be accepted in the program. It is usually stated that to be admitted a patient must require at least two of the services offered.² In a survey of CHC Programs conducted in the United States, the success of a program is linked to the setting of "definite limits for the eligibility of patients based on service requirements."³ Quite frequently as a program is evolving the criteria for admission are modified.⁴ One article specifically

¹Roth, op. cit.; see also Barter, op. cit., 58; Littauer, Flance and Wesson, op. cit.; B.T. Dale and Margaret Braud, "Home Care in a Local Public Health Program," Canadian Journal of Public Health, 59 (August, 1968), 302, 303; Louise Candland, "The Home Care Administrator," Nursing Outlook, 16 (January, 1968), 31; Calgary Hospital Extension Program, Guide for Physicians, A Pamphlet for Physicians on the Home Care Program (Calgary: Victorian Order of Nurses, 1970); Esther Lucille Brown, Nursing Reconsidered, Part 2: The Professional Role Community Nursing (Toronto: J.B. Lippincott Co., 1971), 274.

²Barter, op. cit., 57; see also K.I.G. Benson and Lavinia Crane, "Home Care - Why the Hesitancy," Canadian Journal of Public Health, 57 (July, 1966), 293.

³U.S. Department of Health, Education and Welfare, (No. 1062), op. cit., 8.

⁴Littauer, Flance and Wesson, op. cit., 15; see also the Second Annual Report of the Hamilton-Wentworth Home Care Programs for the Year Ending March 31, 1968 (Hamilton: Victorian Order of Nurses, 1968); Fifth Annual Report of the Hamilton-Wentworth Home Care Program for the Year Ending March 31, 1971 (Hamilton: Victorian Order of Nurses, 1971). The Second Annual Report (1967-1968), 3, states that to be admitted to the program, a patient must require two services unless there is a saving of hospital days through early discharge or inlieu of admission, in the latter two cases only one service is required. The Fifth Annual Report (1970-1971), 1, states that any patients requiring one professional service can be admitted to the program.

states that it is very important to keep the method of referral and criteria for admission as simple as possible.¹

Age is not a barrier to home care. He may be a child,² or an elderly patient.³ Statistical figures produced in many studies indicate that patients in the "over forty" age group are the greatest users of the program with the largest representative group being the "over sixty" category and the least users in the "under twenty" age group.⁴

Statistics also show a preponderance of females receiving the benefits from CHC Programs.⁵ The fact that the life expectancy of females is higher than males, and the high utilizers of the program are in the "over sixty" age category probably give credence to this phenomenon.

¹Engelmohr, op. cit., 13.

²Agnes Johnston, "Teammates are Equal Partners," The Canadian Nurse, 64 (September, 1968), 36-41; see also Jeanette M. Juntii, "Problem Solving in Arranging for Comprehensive Home Care," Nursing Forum, 8 (January, 1969), 103-109.

³C.S. Ford, J. Kaplan and D. Gremling, "Home Delivered Meals Helps Aged and Ill Live Independently," Hospitals, 42 (August, 1968), 80-83; see also Emilie G. Sargent, "Evolution of a Home Care Plan," American Journal of Nursing, 57 (July, 1961), 89-91.

⁴Littauer, Flance and Wessen, op. cit., 22; see also Barter, op. cit., 59; John R. Griffith, Lewis E. Weeks and James Sullivan, The McPherson Experiment (Ann Arbor: The University of Michigan, 1967), 210; Dale and Braund, op. cit., 86; Lewis Weeks and John R. Griffith (ed.), Progressive Patient Care, An Anthology (Ann Arbor: The University of Michigan, 1964), 296.

⁵Littauer, Flance and Wessen, op. cit., 23; see also Goldman and Fraenkel, op. cit., 79; Griffith, Weeks and Sullivan, op. cit., 208; First Annual Report of the Calgary Hospital Extension Program for the Year Ending March 31, 1971 (Calgary: Victorian Order of Nurses, 1971), Table V, 7.

Drugs, surgical supplies, equipment, and laboratory services, as well as transportation, if it is required, are all important services which are usually included in most programs.¹

The type of illness suffered can exclude the patient from a CHCP but more programs to serve patients with specific diseases are being set up.² Many programs do not accept patients with terminal illness. Ryder says that in programs where patients with a terminal disease have been admitted, the patients were, in general, better off mentally and physically in the home setting. Roth et. al. also state that CHCP can reduce prolonged stays in hospital and extended care institutions and the opportunity for patients to recuperate in home surroundings can produce dramatic recoveries.³ It can also give a family the opportunity to be together during a terminal illness.

Team Members and Services Provided in a CHCP

"Services by teams of persons with different skills is one of the basic principles governing the operation of organized programs of home care," say Goldman and Fraenkel.⁴ Some programs are limited in the number of services they provide, while others are comprised of all of the

¹Ibid.; see also Milton Brown, "Home Care Program for Metropolitan Toronto," Canadian Family Physician, 14 (December, 1968), 49-52.

²Claire F. Ryder, Pauline G. Stitt and William F. Elkin, "Home Health Services - Past, Present, Future," American Journal of Nursing, 67 (July, 1961), 1726-1728.

³Roth, Ehinger and Mosher, op. cit., 1845.

⁴Goldman and Fraenkel, op. cit., 86.

following services: medical, nursing, social service, physiotherapy, occupational therapy, speech therapy, dietary and housekeeping.¹

One program offered the services of a handyman,² while another provided a bed linen supply for its patients.³

Most of the articles reviewed stress the importance of having medical support for the program.⁴ Mather and Hobaugh did a study on attitudes of physicians toward a coordinated home care program and concluded "that the physicians who used the program had broader professional contacts than those who did not and were more exposed to innovations, being more secure, they could run the risk of experimenting."⁵ They also found that more of the doctors who had been involved in the initial planning used the service more than those who had not.

¹Marcus Kogel and Marta Fraenkel, "Home Care Come of Age," Part II, Hospitals, 27 (May, 1953), 56; see also Barter, op. cit., 60; Roth, Ehinger and Mosher, op. cit., 1842; Griffith, Weeks and Sullivan, op. cit., 216; U.S. Department of Health, Education and Welfare, (No. 1062), op. cit., 6.

²Roth, Ehinger and Mosher, op. cit., 1842.

³Saskatoon Home Care Program, Manual (Saskatoon: Home Care Program, 1966), 2.

⁴Phyllis Jones, "The Public Health Nurse and General Practice," The Canadian Nurse, 64 (July, 1968); see also Phyllis Jones and Doreen M. Bondy, "Family Health Service: The P.H.N. and the G.P.," The Canadian Nurse, 65 (September, 1969), 38-40; Candland, op. cit., 31; Benson and Crane, op. cit., 290; Alice M. Gonnerman, "After Hospitalization, What? Discharge Planning Offers Answers," Hospitals, 43 (April, 1969), 81; Griffith, Weeks and Sullivan, op. cit., 210; Peter Rogatz and Guido Crocetti, "Home Care Programs -- Their Impact on the Hospital's Role in Medical Care," American Journal of Public Health, 48 (September, 1958), 1126-1127.

⁵William G. Mather and Robert J. Hobaugh, "Long Term Care - Attitudes of Physicians Toward a Hospital Based Home Care Program," Hospitals, 42 (April, 1968), 92.

Service costs to the patient varies from program to program. In Canada, all, or most of the services for the patient in a CHCP are provided free of charge,¹ while in the United States the patient often pays a fee for each service unless he is a welfare recipient.² In some states, health plans such as Blue Cross and Prepaid Group Practice Plans provide financial coverage for home care services.³

Obstacles Encountered in Setting Up a Program

Littauer mentions eight obstacles which may stand in the way of introducing a CHCP.⁴ Included in the reasons are the lack of trained personnel, the difficulty for members of the hospital organization to adapt to the program, and the one which is a very important aspect to consider -- the lack of financial support through

¹Hamilton - Wentworth Home Care Program, 1971, op. cit., 2; see also Calgary Hospital Extension Program, op. cit., 4; Sixth Annual Report of the Metropolitan Toronto Home Care Program for Year Ending March 31, 1970 (Toronto: Department of Public Health, 1970), pages not numbered.

²Esther Lucille Brown, op. cit., 279; see also Engelmohr, op. cit., 19; Laura Jackson, Hospital and Community (New York: The MacMillan Co., 1964), 711.

³Esther Lucille Brown, op. cit., 269; see also Joseph Stiefel, "Use and Cost of AHS Coordinated Home Care Programs," Inquiry, A Review of Current Research in Hospital and Medical Economics, 4 (October, 1967), 65-66; Arnold V. Hurtado, Merwyn R. Greenlick and Ernest Saward, "The Organization and Utilization of Home-Care and Extended-Care Facility Services in a Prepaid Comprehensive Group Practice Plan," Medical Care, 7 (January-February, 1969), 30.

⁴David Littauer, "Essentials and Objectives of After Care Programs," Journal American Physical Therapy Association, 42 (February, 1962), 92.

Blue Cross - Blue Shield Plans, Commercial Insurance, etc.¹

One article mentioned that an impediment encountered in the program operation was the lack of or inappropriate referrals from the physician.²

In a survey of coordinated home care programs done in the United States it was found that one factor which influenced the development of a program was whether the community was ready and able to fully utilize this type of service.³ This is an extremely important observation which should come forth following a community health need study. It reinforces the point of having a community study before initiating a coordinated home care program.

Summary

The review of the literature has been an overview of the development of coordinated home care programs and the mitigating forces which precipitated their establishment. References have been made to the various types of programs in operation as well as for whom the programs were designed. Personnel involved and the services provided in such programs have also been touched upon. No literature that is adverse to the CHCP concept has been discovered by the investigator.

¹For an additional reference to the lack of financial support of CHC Programs see John R. Griffith, Taking the Hospital to the Patient (Battle Creek, Michigan: W.K. Kellogg Foundation, 1966), 17.

²U.S. Department of Health, Education and Welfare, (No. 1062), op. cit., 5.

³Ibid.

It would seem advisable to determine, before establishing a program, the services needed and the expected demand for these services. It is toward these objectives that this study is directed and to which we now turn, first explicating the methodology of the study and then turning to the presentation and interpretation of the findings.

CHAPTER III

METHODOLOGY

This chapter provides information on the pre-study procedure, the questionnaire, and the data collection procedure; following this, the population is defined the composition of the sample and methodology of sample selection is discussed, and arguments concerning the external and internal validity of the study are presented. The next section contains the operational definitions, which include the criteria used by the physician to assess the eligibility of patients for referral to a CHCP, and the final portion of the chapter is devoted to a presentation of the statistical techniques used in the analysis of the data.

Data Gathering Technique and Data Collection Procedure

Prior to the initiation of the study, letters¹ were sent by the Director of the Alberta Hospital Services Commission to the administrators and medical directors of all hospitals involved. The letters cited the purpose of the study and sought the co-operation of the medical directors by asking them to notify their hospital's medical staff of the study. A letter² was also provided which could be used by the medical director for this purpose. The questionnaire³ used for data

¹See Appendix A (letters), p. 8.

²See Appendix A (letters), p. 8.

³See Appendix B (questionnaire), p. 8.

collection was pretested and then modified to insure reliability and face validity of the questionnaire. A one page instruction sheet¹ and a separate explanatory note² was provided at the time of administration.

By inspection the reader will see that data was collected relating to (1) physicians' attitude towards the desirability of a CHCP for Edmonton, (2) patient data (e.g., age, sex, etc.), (3) diagnosis on discharge, (4) physician's opinion regarding his particular patient's candidacy for CHCP if it had been available, (5) number of hospitalized days saved, where appropriate, (6) length of required care in a CHCP, and (7) types of services the patient might require in a CHCP.

In order to check the consistency of the opinions regarding the patient's candidacy for a CHCP, two statements, essentially requesting the same opinion, were composed. These pairs of questions (1 and 6, 2 and 7, 3 and 5) in Part II were regarded as uninterpretable unless at least two out of every three physicians similarly responded to both questions.

Using the information on the patient's medical record and/or the hospital discharge lists, the investigator completed Part I of the questionnaire with the exception of the discharge diagnosis which was supplied by the physician.

¹See Appendix B (instructions and explanations), p. 8 .

²See Appendix B (instructions and explanations), p. 8 .

Although basically similar in all hospitals, the data collection procedure followed a slightly different pattern in Hospital "B" and Hospital "C". In Hospital "B" most physicians involved in the survey completed the questionnaire in the medical director's office on the data collection day. In Hospital "C", designated personnel in the medical records department asked the physician to complete the questionnaire when he came to their department.

In Hospitals "A" and "D" the questionnaire was attached to the patient's medical record and placed in the physician's chart cubicle in the medical records department. Physicians were notified of their inclusion in the survey through the hospital switchboard or their offices.

Population

Theoretically, the population consisted of all eligible patients¹ in the four general hospitals in Edmonton; however, the actual study population was patients discharged² from the four general hospitals on the randomly selected survey days over a ninety day period.

The hospitals included in the study population were:

- (1) The Edmonton General Hospital
- (2) The Misericordia Hospital

¹See definitions, page 6.

²See definitions page 6.

(3) The Royal Alexandra Hospital

(4) The University of Alberta Hospital

Only the acute general hospitals were included because from past experience of CHC Programs the highest percentage of their patients were referred from this source.¹

A fifth general acute hospital in the city was omitted from the study. The omission was deemed justifiable, since, being a federally owned hospital, the majority of the patients were not residents of Edmonton, making them ineligible for CHC services in the city of Edmonton.

Sample

The sample was composed of ten percent of the total discharged patients² from each of the four general hospitals, on each of the twenty-one survey days during a ninety day period. Three survey days were in January, two in February, eleven in March, and five days in April. Hospital discharge lists were used for sample selection. A non-eligible patient selected was replaced by the following, first eligible patient.³

¹Sixth Annual Report, op. cit., Tables I and II, Appendix A; see also First Annual Report, op. cit., Table II, 6; Annual Report, op. cit., Table AIV, 6.

²See definitions, page 6.

³See definitions, page 6.

The study was randomized over time, i.e., day, and by patient selection, thus reasonable generalizability (external validity)¹ of this survey can be made to future eligible patients in the four hospitals. Internal validity² was also enhanced since differential selection was controlled. However, there were several variables which could adversely affect internal validity. One of the most serious threats was the description of a CHCP supplied in the questionnaire which may have biased the physician's attitude toward such a program. While comments made by a few physicians would suggest that they were unfamiliar with the principles of random sampling, these were too few in number to constitute any reasonable concern; further, a cursory check of the referral patterns on such questionnaires indicated no distinctive difference from other response patterns.

Historical events also may have influenced the internal validity of the study, two of which are worth noting. Firstly, just prior to the commencement of the study provincial government authorities placed a "freeze" on hospital construction, and secondly, during the latter portion of the data collection period some hospital budgets were approved by the Alberta Hospital Service Commission at less than the requested amount.

¹For discussion of internal and external validity see Donald T. Campbell and Julian C. Stanley. Experimental and Quasi-experimental Design for Research (Chicago: Rand McNally and Co., 1963), 5-6.

²Ibid.

Operational Definitions

Criteria Used to Assess Eligibility of Patients for Referral

As discussed in the review of the literature all CHCPrograms have established criteria to assess the eligibility of the patient for referral to the program.¹

To establish whether the criteria are met by the patient required the cooperative effort of several persons. Only the physician was involved in the present study. For this reason only criteria concerning the medical condition of the patient, of which the physician would be aware, were included for the assessment of the eligibility of the patient. These necessary but presumably insufficient criteria consisted of the following:

- (1) the patient's condition is such that he can be treated at home using the services of a CHCP;
- (2) the patient cannot be adequately treated as an out-patient because of the type or degree of illness or disability; and
- (3) the patient requires services which would be available through a CHCP.

¹See literature review under section 'Criteria for Admission', paragraph one, page 13 for discussion of criteria which are usually basic to most programs.

Data Analysis Procedure

To describe the sample, descriptive statistics including measures of central tendency, (the mean, median, mode) and frequency distributions including ranges are reported for the variables such as age, sex, length of stay.¹

Prior to data collection an alpha level (α .05) of .05 was selected as the level of significance for any inferential analyses done to check the validity of stated hypotheses.

In Hypothesis 1² where the null hypothesis states there is no difference in the proportion of referred and non-referred patients to a CHCP, the probability of obtaining the observed results was calculated by finding the standard deviation of the proportions (S_p) and then identifying the confidence bounds by calculating the standard error of the proportions (S_e) and computing 95% confidence bounds for referrals. A similar procedure was used to identify the 95% confidence bounds for females in the study.

In the testing of Hypotheses 2 and 4, the variable in both H_2 and H_4 , "length of hospitalization" and "age" respectively, meet the criteria for measurements at the interval scale², while the dependent

¹See Chapter I, p. 4, for a complete list of these variables.

²See Chapter I, p. 5.

³Sidney Siegel. Non-Parametric Statistics for the Behavioral Sciences, (New York: McGraw Hill Book Co., 1956), 30. Data that can be measured at the interval scale contain relations of (1) equivalence, (2) greater than, (3) and the ratio between any two intervals is known.

variable "referral" can only be measured at the nominal level.¹ Both the Chi square (X^2) and the point biserial correlation coefficient were computed to test the significance of relationship (H_2 , H_4) for these variables.

In Hypothesis 3 since both the variables "sex" and "referral" are nominal only a Chi square was computed.

The analysis of the results obtained by applying the techniques just discussed are presented in the following section, Chapter IV.

¹Ibid. The nominal scale is the weakest level of measurement. Data contains only the relation of equivalence.

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The chapter is divided into two main sections: the first one containing primarily the descriptive statistical treatment of the data in relation to (1) the survey in general, (2) patients referred and not referred, (3) referred patients only and (4) the physicians involved in the study. The second section includes the inferential statistical treatment of the study hypotheses.

Where applicable, each subsection presents the statistical facts concerning the variables under discussion in relation to the total sample and to referrals; this information is followed by a discussion of the findings. When the variable under discussion is primarily related to the testing of a specific hypothesis, the major part of the presentation and analysis of that data is included in the second section. Conclusions are summarized at the end of this chapter.

Descriptive Statistical Data

General Survey Information

Population and Sample

There was a total of 6492 discharges from the four hospitals on the twenty-one survey days between January 17 and April 15, 1972.

Of this number 2245 of the patients were excluded from the study because they did not meet the necessary criteria,¹ leaving a net total study population of 4247 "eligible" discharges. The sample of 654 was a random selection of 10% of the total discharges in each hospital, on each survey day; in actuality it encompassed 15.3% of the total eligible discharges.² In Hospitals A, B, and C, non-eligible patients made up 29.3%, 26.5%, and 28.8%, respectively of their total discharges, while 51.1% of the discharges from Hospital D were non-eligible. Included in the non-eligible category were 1753 patients from out of town, 417 newborns discharged with their mothers, and 75 expired patients. Table 1, page 31 gives a further breakdown of these figures by hospital.

From this information it is clear that Edmonton hospitals are serving a large number of patients from outside the city. This is particularly true for Hospital D where nearly half (45%) of the patients fall in this category. This fact has direct relevance for the number of patients who can be expected to qualify for referral to a CHCP in Edmonton in the future.

Questionnaire

The average "rate of return" of the questionnaire was 89.1%, ranging from 100% in Hospital B to 75.8% in Hospital D.

¹See definitions, Chapter I, p. 6 . Details regarding the composition of non-eligible patients are provided in Table 1:A, p. 31.

²See definitions, Chapter I, page 6.

TABLE 1:A
COMPOSITION OF DISCHARGES BY HOSPITAL

Hospital	Total Discharges	Non-Eligible Discharges			total	Eligible Discharges ⁴
		o.o.t. ¹	n.b. ²	exp. ³		
A	1117 (100.0)	246 (22.0)	68 (6.1)	14 (1.2)	328 (29.3)	789 (70.7)
B	1115 (100.0)	223 (20.0)	66 (5.9)	7 (0.6)	296 (26.5)	819 (73.5)
C	2497 (100.0)	489 (19.6)	198 (7.9)	34 (1.3)	721 (28.8)	1776 (71.2)
D	1763 (100.0)	795 (45.1)	85 (4.8)	20 (1.1)	900 (51.0)	863 (49.0)
Total	6492 (100.0)	1753 (27.0)	417 (6.4)	75 (1.2)	2245 (34.6)	4247 (65.4)

TABLE 1:B
SAMPLING RATIOS BY HOSPITAL

Hospital	Eligible Discharges ⁴	Sample	
		Questionnaires Sent Out	Questionnaires Completed
A	789 (100.0)	110 (13.9)	100 (12.7)
B	819 (100.0)	114 (13.9)	114 (13.9)
C	1776 (100.0)	252 (14.1)	234 (13.2)
D	863 (100.0)	178 (20.6)	135 (15.6)
Total	4247 (100.0)	654 (15.3)	583 (13.7)

¹"out of town"

²"newborn"

³"expired patient"

⁴See definitions, page 6

Figures in parentheses are % calculated on row total

A summary of this information is included in Table 1:B data, page 31.

It will be recalled that referral to a CHCP must have been consistently indicated in any one set of paired questions¹ answered in Part II of the questionnaire. As seen in Table 2, high consistency was observed over all pairs. Inconsistencies were classed as non-referrals.

TABLE 2
CONSISTENCY OF RESPONSES
TO PAIRED QUESTIONS

Paired Questions	Consistent Responses	%
Q ₁ and Q ₆	511	(88.4)
Q ₂ and Q ₇	551	(94.3)
Q ₃ and Q ₅	537	(92.1)

Overall 111 subjects (19%) in the sample were considered as referrals. An analysis of each pair of questions indicated that 59 of the patients would have been referred at the time of discharge (Q₁ and Q₆), the admission might have been averted if

¹Future references in this study to a question contained in the questionnaire will be represented by "Q" followed by the question number.

the patient could have been referred in 38 of the cases (Q₂ and Q₇), and 67 patients could have been discharged earlier if a program had been available (Q₃ and Q₅). In 47.7% of the referrals, the physician had indicated on more than one pair of questions that he would refer the patient. This accounts for the higher total figure reported for referrals by assessment of the individual pairs of questions in comparison to the actual referral figure.

This phenomenon of referring the patient on more than one pair of questions could have resulted because the questions had to be answered in retrospect and it is quite possible that at some point during his present illness that the patient may have qualified for referral on any one pair of questions.

As mentioned previously¹ the high rate of return of the questionnaire enhances the generalizability of the study findings. The questionnaire would appear reliable because of the high percentage of consistency in the answers to the paired questions.

Hospitals

The referral rate for hospitals ranged from 14% in Hospital A to 21.4% in Hospital C. Table 3, page 34 provides a summary of this information. A Chi square (X^2) value of 3.14019 with three

¹Chapter 3, p. 25.

degrees of freedom was not significant at the .05 level of significance; therefore, the number of referrals relative to sample size cannot be considered significantly different in the four hospitals.

TABLE 3
REFERRALS - NON-REFERRALS BY HOSPITAL
FREQUENCY

Hospital	Non-Referred	Referred	Row Total
A	86 (86.0)	14 (14.0)	100 (17.2)
B	95 (83.3)	19 (16.7)	114 (19.6)
C	184 (78.6)	50 (21.4)	234 (40.1)
D	107 (79.3)	28 (20.7)	135 (23.1)
Column Total	472 (81.0)	111 (19.0)	583 (100.0)

$$\chi^2 = 3.14019 \text{ with 3 degrees of freedom}$$

$$\text{The critical value of } 95\chi^2_{3df} = 7.82$$

Figures in parentheses are % calculated on a total n = 583

Statistical Information Common To All Patients In The Sample

Age

There was no difference in the age range (0-95 years) or the mode (1 year of age) for the total sample and the referral group. The median age of 30 years for the sample was three years less than the median age of the referrals. Pediatric patients (15 years of age and less) made up approximately 20% of both the sample and the referral group; patients in the 60 years and over categories comprised approximately 23% of the referrals. Combining these two figures, nearly one-half of the referrals were either 15 years or less or over 60 years of age.

The high proportion of older patients referred follows the usual pattern reported in the CHCP literature¹ but the relatively high referral rate for young patients is a somewhat atypical pattern which is difficult to explain. This phenomenon may have occurred due to medical reasons which might have included the following: (1) more parents in Edmonton need assistance in caring for their children when they are ill at home; (2) children in Edmonton suffer more from diseases or conditions that can be treated in a CHCP; (3) specialized programs operated by children's hospitals in other cities reduce the number of pediatric patients

¹Chapter II, p.15 . Further discussion on the high referral rate for older patients will be found in Chapter IV, p.60 in which the inferential statistical analysis of Hypothesis 4 is presented.

in the regular CHCP; (4) Edmonton physicians are recognizing the psychological and physiological value of averting admission or arranging early discharge for their pediatric patients more than do physicians involved in other CHCPrograms. However, the reasons may in fact, be unrelated to medical factors per se, and be solely due to the study design itself. Since it was a hypothetical CHCP, the physicians may not have reacted in the same way as they would if a program had actually been in existence; and, unlike many existing programs; there were no limitations placed on the number of services a patient required before he was eligible for admission to the CHCP.

The age variable will be discussed further in relation to the inferential statistical analysis of Hypothesis 4, page 60.

Sex

Male patients comprised 42% of the total sample; of this number 16.9% were referred, as compared to 20.5% of the females.

The proportion of each group referred was not significantly different. This point is elaborated upon in the presentation of the inferential statistical analysis regarding Hypothesis 3, page 58.

There were approximately 20% more females than males in the study and since we were unable to determine if this had occurred by chance or, if in fact there were more women than men requiring hospitalization, the probability of obtaining a random sample

with this ratio of female to male patients was computed. This information is also presented in the hypothesis testing section of this chapter.

Marital Status

Married patients comprised approximately 56% of the sample and had a referral rate of 16% as compared to the non-married¹ group whose referral rate was 22.5%.

TABLE 4
REFERRALS - NON-REFERRALS BASED ON
MARITAL STATUS

Marital Status	Non-Referred	Referred	Row Total
Married	271 (83.6)	53 (16.4)	324 (55.7)
Non-Married	200 (77.5)	58 (22.5)	258 (44.3)
Column Total	471 (81.0)	111 (19.0)	582 (100.0)

$\chi^2 = 3.102$ with 1 degree of freedom

The critical value of $95\chi^2_{1df} = 3.84$

Figures in parentheses are % calculated on a total n = 582

¹Non-married includes those patients who are (1) single, (2) widowed, (3) separated, (4) divorced.

The critical value for $_{95}X^2_{1df} = 3.84$, so we must assume there is no difference in the rates of referral for married and non-married patients.

Area of Residence

The greater portion (71.2%) of the patients in the sample resided North of the North Saskatchewan River, and a higher referral figure from this North side occurred. A Chi Square of 0.014 with 1 degree of freedom indicated that there was no significant difference in the referral rates from the two areas; however the fact that nearly three quarters of the patients in the sample as well as the referred group reside in the Northern section of the city is an important point to consider in CHCP planning in Edmonton. Table 5 page 39 depicts the area of residence for the referred and non-referred patients.

Diagnosis

The diagnoses were coded according to the Hospital Adaptation of International Classification of Diseases Adapted for Use in the United States.¹ Initially in proposing the study, consideration was given to omitting obstetrical and pediatric patients from the survey since, from past experience of other programs, only a very small percentage of these patients were usually referred to a CHCP.

¹In the future will be abbreviated to H-I.C.D.A.

TABLE 5
REFERRALS - NON-REFERRALS BASED ON
AREA OF RESIDENCE

Area	Non-Referred	Referred	Row Total
North of River	337 (81.2)	78 (18.8)	415 (71.2)
South of River	135 (80.4)	33 (19.6)	168 (28.8)
Column Total	472 (81.0)	111 (19.0)	583 (100.0)

$\chi^2 = .0143$ with 1 degree of freedom

The critical value for $95\chi^2_{1df} = 3.84$

Figures in parentheses are % calculated on a total n = 583

It was deemed advisable to include these patients¹ in the study because of the possibility of finding different results here in Edmonton; thus, the following figures for patients whose diagnosis was connected with an obstetrical condition are presented here.² These patients comprised approximately 15% of both the total sample and the referral group. Although, as already mentioned, the number of obstetrical and pediatric patients usually

¹Pediatric patients were isolated from the sample on the basis of age, rather than diagnosis, and a discussion concerning this group is included under Section I, subsection "Age", p. 35.

²Obstetrical condition includes delivery, miscarriage, abortion, toxemia, hemorrhage, infection of genital or urinary tract during pregnancy or puerperium (H-I.C.D.A. listing).

referred to a CHCP is very small, the combined number of referrals for these two groups in this survey represents 30% of the total number of referrals.

Again, one can only speculate as to the reasons for these larger referral figures. As previously mentioned it may be due primarily to the nature of the study design,¹ however it could also be attributed to differences in the mode of treatment of these patients as compared to patients in other surveys. Physicians did indicate on the questionnaire that several patients who were having their pregnancies interrupted could have had their admission averted and been treated on an out-patient basis provided there was follow-up care available in the home.

Length of Hospitalization

The range of hospitalized days for both the total sample patients and the referrals was the same, 112 days. The patients in the referral group generally were hospitalized longer; there was a mode of 2 for the length of hospitalization of the sample group compared to 5 for the referral group.

Hospitalized days in relation to referrals are discussed further in connection with the inferential treatment of Hypothesis 2, page 56.

¹See Chapter IV, p. 36

Statistical Information Concerning Referred Patients Only

Hospitalized Days Averted by Referral

Physicians indicated that approximately one-third of the referred patients might have remained at home, thereby averting 325 hospitalized days and therefore, conceivably, permitting the more appropriate utilization of acute hospital beds. One of the patients in this group had been in hospital for 113 days. Table 6, page 42 indicates that the age of the patient and his length of hospitalization are not relevant predictors of referrals to a CHCP based on averting admission to hospital.

More than one-third of the referred patients could have been discharged from hospital earlier, resulting in a potential average saving of from 1-3 days for most of the patients.

Table 7, page 43 indicates a positive relationship between the age of the patient who could have been discharged earlier and his length of hospitalization, i.e., the older the patient who could be discharged earlier, the greater the likelihood that he had been hospitalized 8 days or more. The patients who were 80 years of age or over were only discharged early if they had been in hospital more than two weeks.

Services Required by Patients in a CHCP

Physicians did not indicate services required on 8% of the referrals. Twenty-eight percent of the referrals required only one service of which the visiting nurse service was most in demand. Table 8, page 44 presents the one service in demand by the frequency of the demand.

TABLE 6

REFERRALS BASED ON AVERTING ADMISSION (Q2 AND Q7)
 LENGTH OF HOSPITALIZATION CROSS TABULATED
 WITH THE AGE OF THE PATIENT

Count Total	Age	Length of Hospitalization by Days				Row Total
		0-3	4-7	8-14	15+	
	0-19	4 (10.5)	4 (10.5)	4 (10.5)	2 (5.3)	14 (36.8)
	20-39	3 (7.9)	3 (7.9)	2 (5.3)	0 (0.0)	8 (21.1)
	40-59	0 (0.0)	0 (0.0)	1 (2.6)	1 (2.6)	2 (5.3)
	60-79	4 (10.5)	2 (5.3)	1 (2.6)	1 (2.6)	8 (21.1)
	80+	1 (2.6)	3 (7.9)	1 (2.6)	1 (2.6)	6 (15.8)
Column Total		12 (31.6)	12 (31.6)	9 (23.7)	5 (13.2)	38 (100.0)

$\chi^2 = 8.025$ with 12 degrees of freedom

The critical value of $95\chi^2_{12df} = 21.03$

Figures in parentheses are % calculated on a total n = 38

TABLE 7

REFERRAL BASED ON EARLY DISCHARGE (Q3 and Q5)
 LENGTH OF HOSPITALIZATION CROSS TABULATED
 WITH AGE OF THE PATIENT

Count Total Pct.	Age	Length of Hospitalization (Days)				Row Total
		0-3	4-7	8-14	15+	
	0-19	1 (2.4)	4 (9.5)	0 (0.0)	2 (4.8)	7 (16.7)
	20-39	0 (0.0)	15 (35.7)	4 (9.5)	1 (2.4)	20 (47.6)
	40-59	0 (0.0)	2 (4.8)	2 (4.8)	2 (4.8)	6 (14.3)
	60-79	0 (0.0)	1 (2.4)	4 (9.5)	1 (2.4)	6 (14.3)
	80+	0 (0.0)	0 (0.0)	0 (0.0)	3 (7.1)	3 (7.1)
Column Total		1 (2.4)	22 (54.4)	10 (23.8)	9 (21.4)	42 (100.0)

$\chi^2 = 29.58$ with 12 degrees of freedom

The critical value $_{95}\chi^2_{12df} = 21.03$

Figures in parentheses are % calculated on a total n = 42

TABLE 8
ONE SERVICE REQUIRED - TYPE OF
SERVICE AND FREQUENCY
(n = 31)

Q10 No.	Type of Service	Frequency
02	Visiting Nurse	21
05	Housekeeping, Home Help	4
06	Social Worker Consult.	3
07	Nutritionist Consult.	1
12	Equipment	1
17A	Public Health Consult.	1

As the number of services required by any one patient increased, the number of patients in the group decreased, with the result that the final category included only one patient requiring nine services. Table 9, page 45 presents this information in summary form.

The two most frequent combinations of services required were (1) visiting nurse service and social worker consultation, and (2) visiting nurse and housekeeping or home help services. Table 10, page 45 shows the number of patients requiring these mixes of services as well as the number of other services required in addition to these combinations.

TABLE 9
NUMBER OF REFERRED PATIENTS REQUIRING
ZERO - NINE SERVICES

Number of Patients	Number of Services Required
9	0
31	1
26	2
15	3
13	4
7	5
3	6
3	7
3	8
1	9

Visiting nurse service was indicated for approximately two thirds of all referrals. There was no service listed in Part III, Q10, of the questionnaire that was not ordered for at least one of the referred patients. In addition to the list of services provided, physicians indicated in Q17 that services of an inhalation therapist were required by five patients; one physician also indicated that one patient needed assistance from "public health personnel." In this latter case nothing more specific was stated, i.e., the type of specialized

TABLE 10

NUMBER OF REFERRED PATIENTS REQUIRING SERVICES WHICH INCLUDE
COMBINATIONS OF VISITING NURSE SERVICE - SOCIAL WORKER
CONSULTATION OR VISITING NURSE SERVICE - HOUSEKEEPING
OR HOME HELP SERVICE

Total No. of Services Ordered	Total Patients In Category	Visiting Nurse + Social Worker	Visiting Nurse + Housekeeping
2	26	5	4
3	15	4	4
4	13	3	3
5	7	5	0
6	3	2	2
7	3	2	0
8	3	1	3
9	1	0	0

assistance required from the public health staff. Table 11, page 47 presents the list of these services by order of demand.

Excluding physician services, 84% of the patients for whom two or more services were indicated, required at least one of the following services; nursing, physiotherapy, occupational therapy, inhalation therapy.

Physicians also indicated in Part III, Q16, that personnel with specialized training or experience were required in several of the referred cases. Particular emphasis was placed on having nurses

TABLE 11
TYPE OF SERVICE REQUIRED BY REFERRED PATIENTS
BY ORDER OF DEMAND

Q No.	Type of Service	No. of Patients Needing Service
02	Visiting Nurse	77
06	Social Worker Consult.	30
01	Supervision by Physician	25
05	Housekeeping or Home Help	25
09	Prescription Drugs	21
03	Physiotherapy	15
15	Transportation	14
07	Nutritionist Consult.	13
04	Occupational Therapy	12
08	Meals on Wheels	11
10	Dressings	9
14	Laboratory	9
13	X-rays	8
12	Equipment	7
17a	Inhalation Therapy	5
11	Appliances	1
17b	Public Health Consult.	1

with specialized training and/or experience in: psychiatric nursing (10 requests); cardiac rehabilitation (2 requests); obstetrical and pediatric nursing (1 request); and; a "diabetic paramedical nurse" (1 request). Persons trained in psychiatric social work were also in demand.

From the number of requests for personnel with specialized training and/or experience in certain fields it would seem that physicians are placing emphasis on specialists in nursing and in social work, rather than on generalists in these fields.

The fact that more than 25% of the referrals required only one service would have considerable bearing on the projected patient census in an Edmonton CHCP if admission criteria specified that at least two services were required for referral to the program. Clearly, the findings in this study would have been different if the study design had been restricted in this respect.

Length of Time Services Required in a CHCP

No indication was made for 7% of the referred patients as to the length of time they would require care. Nearly 25% of the patients required less than one week of service while approximately 50% required services for two or more weeks. Long term care¹ was required by 17% of the referrals. Indications were that the older

¹More than 25 weeks of service.

the referred patient, the more likelihood that long term care was required. Table 12 and Table 13, page 49, 50 provide a detailed summary of this information.

TABLE 12

LENGTH OF TIME PATIENT REQUIRED SERVICES IN A CHCP
SUMMARY OF RESPONSES TO Q8
(n = 111)

Length of Service	Frequency
Question not answered	8
Less than one week	27
One week	13
Two weeks	14
Three weeks	3
Four weeks	9
Five weeks	0
Six weeks	4
More than six weeks	33

TABLE 13
 PATIENTS REQUIRING MORE THAN SIX WEEKS OF SERVICE
 SUMMARY OF RESPONSES TO Q9
 (n = 33)

Number of Weeks	Frequency
Eight weeks	1
Ten weeks	4
Twelve weeks	5
Fourteen weeks	1
Sixteen weeks	2
Twenty-five weeks	1
Long term	19

Physicians Involved In The Study

A total of 271 physicians completed 583 questionnaires. The number of questionnaires completed per physician ranged from one (114 physicians) to eight (1 physician). Table 14, page 51 presents this information in more detail. Most physicians (94%) were involved in the study in only one hospital, however 14 (5.2%) completed questionnaires in two hospitals, while one (.4%) was involved in three hospitals and another in all four of the hospitals.

TABLE 14
 NUMBER OF QUESTIONNAIRES
 COMPLETED PER PHYSICIAN
 (n = 271)

Physicians Completing Questionnaires	No. of Questionnaires Completed
114	1
81	2
34	3
21	4
11	5
5	6
4	7
1	8

Patients were referred by 85 (30%) of the physicians; however nineteen of the eighty-five physicians were responsible for 40% of the referrals. Table 15, page 52 depicts the number of referrals per physician.

On 78% of the questionnaires physicians indicated they were "in favor" or "not in favor" of a CHCP for Edmonton. As indicated in Table 16, page 53 there were 423 responses (92.8%) "in favor". While 33 (7.2%) questionnaires had indications of "not in favor" some of these physicians indicated referrals for four patients.

TABLE 15
NUMBER OF REFERRALS
PER PHYSICIAN

Number of Physicians	Number of Referrals Per Physician
66	1
14	2
4	3
0	4
1	5

Several physicians who did not answer this question gave as the reason their lack of knowledge of such programs, or that there was insufficient information provided in the questionnaire about a CHCP.

Again, since this was a hypothetical program, the responses may have been quite different if an actual program was already in operation in the city.

TABLE 16
REFERRALS - NON-REFERRALS BASED ON
PHYSICIANS RESPONSES TO THE
PROPOSED CHCP FOR EDMONTON

CHCP for Edmonton	Non-Referred	Referred	Row Total (%)
In Favor	331 (72.6)	92 (20.2)	423 (92.8)
Not in Favor	29 (6.4)	4 (0.9)	33 (7.2)
Column Total	360 (79.0)	96 (21.0)	456 (100.0)

Corrected $X^2 = 1.1772$ with 1 degree of freedom

The critical value for $95X^2_{1df} = 3.84$

Figures in parentheses are % calculated on a total $n = 456$

Inferential Statistical Analysis of Hypotheses

This section contains the inferential statistical analysis of the four hypotheses which were stated in Chapter I, page 5.

The null hypothesis as well as the alternate hypothesis are stated followed by the interpretation of the results and also the inferred significance of these results in relation to a CHCP.

Hypothesis I

H_0 There is no difference in the proportion of referred and non-referred patients to a CHCP.

H_1 There is a difference in the proportion of referred and non-referred patients to a CHCP.

Confidence bounds for obtaining 111 referral were calculated in the following manner:

$$S_p = \sqrt{\frac{pq}{n}}$$

$$S_e = S_p \times .05^Z$$

$$C = \frac{111}{583} \pm S_e$$

where S_p = standard deviation of proportions
 p = number of referrals (111 or .19)
 q = number of non-referrals (472 or .81)
 n = total number of patients in the sample (583)
 S_e = standard error of proportions
 C = confidence bounds

$$\begin{aligned} S_p &= \sqrt{\frac{pq}{n}} \\ &= \sqrt{\frac{(.19)(.81)}{583}} \\ &= 0.0162 \end{aligned}$$

To establish confidence bounds, the standard error of proportions was computed using a Z value of 1.96 for the alpha level of .05.

$$\begin{aligned} S_e &= (\sqrt{\frac{pq}{n}})(\pm .05^Z) \\ &= (.0162)(\pm 1.96) \\ &= \pm .03175 \end{aligned}$$

Thus the confidence bounds for .19 referrals would be

$$C = .95 \left[.158 \leq \text{Referral Rate} \leq .222 \right].$$

Therefore one can state with a 95% level of confidence that the referral rate to a CHCP would be no less than 15.8% and no greater than 22.2%. Owing to the fact that these confidence bounds do not span 0.5 one would reject the null hypothesis. By inspection one would conclude the proportion of non-referrals is probably greater than the proportion of referrals.

Hypothesis 2

- | | |
|-------|--|
| H_0 | There is no relationship between the length of hospitalization and the likelihood of referral to a CHCP. |
| H_1 | There is a relationship between the length of hospitalization and the likelihood of referral to a CHCP. |

A Chi square was computed with the following results:

TABLE 17

REFERRALS AND NON-REFERRALS BASED ON LENGTH
OF HOSPITALIZATION. OBSERVED AND
(EXPECTED) FREQUENCY REPORTED

Length of Hospitalization	Days	Non-Referred	Referred	Row Total
	0-3	168 (150)	17 (35)	185
	4-7	161 (163)	41 (39)	202
	8-14	94 (102)	32 (24)	126
	15+	49 (57)	21 (13)	70
Column Total		472	111	583

$\chi^2 = 20.6114$ with 3 degrees of freedom

The critical value $_{95}\chi^2_{3df} = 7.82$

$\chi^2 = 20.6114$ and with 3 degrees of freedom has a probability of 0.0001. Hence the null hypothesis was rejected and it was concluded that the longer the patient was hospitalized the more likely his referral to a CHCP.

Since the two variables under study meet the nominal and interval scales,¹ a point biserial correlation coefficient was also computed as a further test of the validity of the hypothesis.

The following formula was used:

$$rpb = \frac{\bar{X}_1 - \bar{X}}{S_x} \sqrt{\frac{n_1 N}{n_0 (N-1)}}$$

¹For definition of nominal and interval scales, see Chapter III, p. 27.

where r_{pb} = point biserial correlation coefficient
 \bar{X}_1 = mean of referrals
 \bar{X} = mean of the sample
 S_x = standard deviation of the sample
 n_1 = number of referrals
 N = number of patients in the sample
 n_0 = number of non-referrals

$$r_{pb} = \frac{11.045 - 8.015}{10.553} \sqrt{\frac{(111)(583)}{(472)(582)}}$$

$$= 0.139357$$

It was assumed that the value of the correlation coefficient in the null hypothesis was equal to zero, so a test of significance using the t distribution was applied using the following formula:

$$t = r \sqrt{\frac{N-2}{1-r^2}}$$

where r = correlation coefficient

N = number of patients in the sample

$$t = .139357 \sqrt{\frac{581}{1-(.139357)^2}}$$

$$= 3.39215$$

The critical value for $.95^{t_{581df}} = 1.96$

Since $3.392 > 1.96$ this correlation coefficient is also statistically significant indicating a similar relationship between referral and length of hospitalization.

We can assume from the information obtained that the largest percentage of referrals to a CHCP will have been hospitalized eight days or more.

Hypothesis 3

- H_0 There is no relationship between sex and the likelihood of referral to a CHCP
- H_1 There is a relationship between sex and the likelihood of referral to a CHCP.

A Chi square test carried out on the data for the variables "sex" and "referral" yielded the following statistics:

TABLE 18

REFERRALS AND NON-REFERRALS BASED
ON SEX OF PATIENT. OBSERVED AND
(EXPECTED) FREQUENCY REPORTED

Sex	Non-Referred	Referred	Row Total
Male	201 (196)	41 (46)	242
Female	271 (276)	70 (65)	341
Column Total	472	111	583

Corrected Chi Square = 0.95949 with 1 degree of freedom
The critical value $95X^2_{1df} = 3.84$

Owing to the fact that the critical value of 3.84 was not exceeded it was assumed the null hypothesis was valid, i.e., there is no difference between referral rates for males and females.

To determine if the numerically larger proportion of females in the sample was likely to have occurred by chance or whether in

actual fact, there were more females hospitalized than males, confidence bounds were established.¹

$$\begin{aligned}
 S_p &= \sqrt{\frac{(.415)(.585)(1/583)}{583}} \\
 &= .0204 \\
 S_e &= .0204 \times 1.96 \\
 &= .0399 \\
 C &= .95 [.545 \leq \text{proportion of females in the sample} \leq .625].
 \end{aligned}$$

The confidence bounds do not span 0.5; therefore, we assume that the larger proportion of females than males in the study was unlikely to have occurred by chance and in all likelihood there are more females than males being admitted to hospital. For this reason and because the referral rates for both groups were proven similar, we can expect more women will be referred to the CHCP than men.

Hypothesis 4

- H_0 There is no relationship between age and the likelihood of referral to a CHCP.
- H_1 There is a relationship between age and the likelihood of referral to a CHCP.

A Chi Square was computed on the following:

¹See procedure for establishing confidence bounds used in testing Hypothesis 1, p. 54.

TABLE 19

REFERRALS AND NON-REFERRALS BASED ON AGE OBSERVED
AND (EXPECTED) FREQUENCY REPORTED

Age	Non-Referred	Referred	Row Total
0-19	132 (131)	30 (31)	162
20-39	175 (170)	35 (40)	210
40-59	100 (97)	20 (23)	120
60-79	55 (52)	15 (13)	70
80+	10 (17)	11 (4)	21
Column Total	472	111	583

$\chi^2 = 16.63$ with 4 degrees of freedom

The critical value $95\chi^2_{4df} = 9.49$

$\chi^2 = 16.63$ with 4 degrees of freedom has a probability = 0.0023, therefore, it was assumed that the null assumption was not valid. Owing to the nature of the scales for the two variables¹ under study, a further test, the point biserial correlation coefficient was computed.²

The following result was obtained:

rpb = .09109, corresponding t = 2.205

¹See Chapter III, Methodology of Data Analysis, page 27.

²See method for computing point biserial correlation coefficient illustrated under Hypothesis 2, page 55.

Since the critical value for $.95t_{581df} = 1.96$ we similarly conclude that there is a relationship between the age of the patient and his likelihood of referral to a CHCP. It would appear from this table that the patients in the 80 year plus category are as likely to be referred as not referred while the patients in the other age groupings are much more unlikely to be referred.

These findings could suggest that physicians see the CHCP as being a particularly valuable service for elderly patients. Whether the CHCP is considered by the physician as a preferred alternative to institutional care or as a convenient "dumping ground" for his elderly patients cannot be determined from this data. Whatever the case it would seem logical to assume that there would be quite heavy demands placed on the program by physicians referring elderly patients.

Summary of Conclusions

Throughout the chapter conclusions have been stated following the reporting and analysis of specific descriptive and inferential data. In order to draw these several conclusions together, a summary is now presented. All conclusions are based on the assumption that the experimental design of the study elicited valid data.

While in terms of other studies the referral rates reported here might be considered high, there is actually no basis for comparison since other studies have included criteria to restrict admission while this study did not. It is concluded from the high referral rate, particularly from the proportion of referrals who could have been

discharged earlier, or had their admission averted, that there is definitive need for a CHCP in Edmonton.

Indications were that the older the patient, and also the longer the hospitalization, the more likely the referral to a CHCP. There were also more older patients requiring long term care in the program. It is therefore concluded that unless some controlling devices are built into CHCPrograms, they could quickly become primarily a service for geriatric patients. This could be either a good or bad end result depending on the objectives of the program.

It is further concluded that, the admitting hospital, the location of residence, the marital status, and sex of the patient are not determining factors in his referral to a CHCP. Since more females are admitted to hospital than males it is concluded that one could reasonably expect a numerically higher proportion of females in an Edmonton CHCP.

From the number of requests for personnel with specialized training and/or experience in areas such as psychiatry, cardiac rehabilitation, obstetrical and pediatric nursing the investigator concludes that physicians are placing considerable emphasis on nursing and social work specialists in these fields.

The data indicated that in varying combinations all services listed in the questionnaire were needed; additionally inhalation therapy was required by some patients. If the CHCP service needs as perceived by the physicians are to be met, it is concluded that initially a program should be prepared to provide these necessary

services. Provisions should also be made to include additional, and/or delete existing services as the patients' needs change.

The summary and recommendations arising from the study will now be presented in Chapter V.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

This study was undertaken to determine the potential patient need for a coordinated home care program (CHCP) in Edmonton and to identify, in order of priority, the services which would be required. Since a community study was already being conducted to determine the CHCP needs of non-hospitalized patients, this study was directed toward hospitalized patients for the purpose of obtaining baseline data which, in conjunction with data from the community study, would be useful to government and local health authorities for planning and decision making purposes.

Twenty-one surveys were conducted over a three month period in four large acute general hospitals in Edmonton. The sample was composed of a random selection of 10% of all discharged patients in each hospital. However, 35% of these total discharges were excluded from the study since they were (1) non-residents of Edmonton, (2) newborns discharged with their mothers, or (3) expired patients.

A questionnaire was used for data collection and was completed by the physicians for the selected sample patients. There was an average rate of return for the questionnaire of 89.1%.

Nineteen percent (111) of the 583 patients in the sample qualified as likely candidates for CHCP services, based on the physicians' consistent responses to any set of the paired questions which indicated whether the physician would have (1) referred the patient at the time of his present discharge, (2) averted the admission by referral, or (3) discharged the patient earlier and referred him. Approximately one-third (38) of the patients selected for CHCP services might have had their admissions averted had these services been available, representing a potential saving of 325 acute hospital days; while an additional 38% (42) of the patients could have been discharged on an average of 1-3 days earlier.

Confidence bounds computed around the 19% referral rate indicated that at the 95% level of confidence, the referral rate would fall between 15.8% and 22.2%. The referral rate for this study was higher than is usually reported for other programs, and it is possible the higher figure could partially be attributed to the experimental design, but also could be due to the criteria established in other programs to control admissions. In the present study referrals were being made to a hypothetical program, and the eligibility of the patient was only assessed on the basis of his medical condition, and therefore did not take into consideration the home conditions, or the consent of the patient or his relatives to accept this mode of treatment. Referral rates stated for other programs have already been affected

by criteria considered necessary to restrict the number of referrals; these restrictive criteria were not included in the present study since the need for a program had not been established. As there is no basis for comparison it would be tenuous to assume that the referral rate found in this study was unduly high. It would seem more reasonable to conclude that the high referral rate indicates that restrictive criteria for referrals might be necessary so that control over patient census could be maintained.

There were 271 individual physicians involved in the study in the four hospitals and they indicated on 73% of the questionnaires that they were "in favor" of a CHCP for Edmonton; 6% of the questionnaires had an indication of "not in favor" while no indication was made on the remainder. It is possible that these responses may have resulted from the study design, i.e., the definition supplied for a CHCP, since some physicians stated they did not know enough about a program to give any opinion.

Approximately 25% of the referrals required only one service. Visiting nurse service was by far the greatest in demand, being required by approximately 70% of all the referrals. Indications were that approximately 40% of the referrals required services for one week or less while 30% required more than six weeks.

The level of significance used in all hypothesis testing was set at .05. According to this criterion, the referral rates of the four hospitals were assumed to be equivalent. Other statistical tests conducted on the sample indicated that the

older the patient, and also the longer the hospitalization, the greater the likelihood of referral to a CHCP. Although there was no significant statistical difference in the referral rates based on marital status or sex of the patient, indications were that more women than men were hospitalized, a factor which would imply that numerically more women than men would require CHCP services.

Although the study was based only on physicians' assessment of the patients' eligibility for referral to a CHCP, it was concluded from the referral rate that the services of a CHCP were needed by a great many patients, and if a program was established it would be a valuable adjunct to the health care of Edmonton residents.

Recommendations

The recommendations are based on the findings and conclusions of the study and are a reflection of the many ideas expressed in the available literature. They involve two main areas: (1) the need for a CHCP in Edmonton; and (2) future research in relation to CHCPrograms in other communities.

It will be recalled that one of the central conclusions of this study was that there is a definitive need for a CHCP in Edmonton. Allowing for the referrals by physicians who would not be eligible for home care due to (1) the home conditions, and/or the refusal of the

patient or his relatives to accept this mode of treatment, the potential number of referrals probably would be slightly less than the 950-1350 referred patients¹ per month indicated in this study.

Findings indicated that 50% of these patients would likely require two weeks or less of service, therefore in the initial few months of the program the daily census could be in the vicinity of 500 patients. Provision for early expansion would also be necessary because of the accumulation of patients in the program requiring more than a month of service.

In the opinion of the investigator it would not be logical from a "cost benefit" standpoint to establish a program to handle all of the potential patients, or to have so large a program that it becomes administratively unwieldy. Neither would it be wise to restrict the daily case load below the level where optimal use is not made of personnel and facilities. On the assumption that the results of this study are valid, it is recommended:

- (1) that a CHCP be provided for the residents of Edmonton at the earliest opportunity; and
- (2) that initially the daily case load accepted be set at the level in which optimum use is made of available personnel and facilities, with provision made for eventual expansion as the need arises.

Before establishing a CHCP it is critically important to

¹These figures are based on the confidence bounds of 15.8% to 22.2% established around the 19% referral rate found in this study and are computed on the basis of 6060 eligible patients per month.

identify the actual objectives of the program. Usually the overall purpose is to provide services by the most appropriate method relative to the health needs of the patient. However, this basic purpose should not be confused with detailed program objectives. Objectives may be directed toward short and/or long term cost saving measures which can be partially accomplished by the more appropriate utilization of institutional beds. If this is the desire, then CHCP objectives should be directed toward (1) the shortening of the length of hospitalization, (2) averting admissions to acute care institutions, and/or (3) averting or delaying institutionalization of the patient at the auxiliary hospital and nursing home level. To facilitate the attainment of these objectives it would be necessary:

- (3) to give careful consideration to the extent of the restrictions and limitations placed on the number of potential referrals by:
 - (a) the admission criteria
 - (b) the prescribed referral method
 - (c) the established daily census and patient mix
 - (d) the availability of services
 - (e) the length of time services will be provided through the program.

The success of a program depends upon its acceptance by the community and the health professions. It is therefore vitally important to secure the acceptance and support of these groups by keeping them informed of program plans. Although the research design may have influenced results, findings indicated that the medical profession had a limited knowledge about CHC Programs, therefore on the basis of the study findings it is recommended:

- (4) that in the initial planning and operating stages of a program concerted efforts be directed toward informing and gaining the support of the health professions and the general community.

Based on the assumption that the high referral rate produced in the study was indeed a representative figure, it would seem advisable, and in fact necessary, to place some limitations on the admissions to a CHCP. The number of patients can be controlled by the stated admission criteria, however criteria that are too restrictive can lead to abuse of the service or defeat the stated objectives of the program. One way to maintain an economically feasible and administratively manageable program through patient census control is to restrict admission to those patients requiring two or more services. This should not present an undue hardship on the patient who requires only one service, since this service can usually be obtained from an independent agency such as the Victorian Order of Nurses. However, the investigator would caution CHCP planners that if the two service requirement is strictly enforced it is not an unknown occurrence¹ for an additional service to be ordered or a second service to be continued to enable the patient to qualify for care through the CHCP, thus needlessly increasing the service costs. To place some control on admissions, avoid the possibility of interferring with

¹Personal observation of the investigator.

the appropriate utilization of hospital beds, and to attempt to combat the ordering of unneeded services, it is recommended:

- (5) that at least two services be required by the patient before his acceptance in the program unless by the supplying of one services, hospitalization of the patient is shortened or averted.

Another method of control used could be one of restricting admissions of those patients requiring less than one week of service which involves a minimum number of home visits. If the present study has produced valid data, then the resulting indication that approximately one-quarter of the referrals fell in this category can be accepted. If an admission to hospital could be averted by provision of this short term care, then the acceptance of the patient in the CHCP would seem logical. Conversely, if the patient is already hospitalized, then the costs of one or two extra days in hospital should be carefully weighed against the costs of admitting the patient to the CHCP for so short a period of time. It is therefore recommended:

- (6) that a patient requiring less than one week of service involving a minimum number of visits be considered non-eligible for the program, unless by providing this short term service his admission to hospital is averted.

To facilitate and encourage appropriate referrals to the program, and to expedite the patient's referral to the CHCP as quickly as possible, it is recommended:

- (7) that the referral procedure be made as simple as possible and paper work be kept to a minimum.

To provide a program broad enough to meet the needs of the majority of referrals, the services most frequently required should be available. Since physicians indicated in the study questionnaire¹ that patients in an Edmonton program would require all of the services listed, and in addition would need the services of an inhalation therapist, it is recommended:

- (8) that all of the following services be included if a CHCP is initiated in Edmonton: visiting nurse, physiotherapy, occupational and inhalation therapy, social worker and nutritionist consultation services, housekeeping and home help, as well as the provision of meals-on-wheels, prescription drugs, dressings, appliances, equipment, x-ray, laboratory, and transportation services; and
- (9) that provision be made to include additional services as the need arises.

On the assumption that the study design elicited valid results, the number of referrals with psychiatric problems would seem to warrant the employing of some members of staff, i.e., some nurses, social workers, and occupational therapists who have had specialized training or experience in this field. Consideration should also be given to providing some instruction in this area to selected homemakers, since in other programs it has proven to be extremely helpful. It is therefore recommended:

¹The questionnaire may be found in Appendix B. See Part III, Q10.

- (10) that some staff members employed in the CHCP have had specialized training and/or experience in meeting the needs of the psychiatric patient.

Study findings indicated that 25% of the referrals required three months or more of service in a CHCP. Assuming that this is a valid finding, a program would rapidly become overburdened with patients unless some methods for controlling this problem were built into the system. It could be possible to cope with a fairly large number of these long term patients if their service needs were not too demanding, and in fact, it might prove more economical to do so in lieu of institutionalizing them. However, if many services were required over a long period of time it would seem economically unsound to continue their care in a CHCP. A regular evaluation should be carried out on all patients who require more than one month of service. At this time decisions should be made as to the best method of providing care in relation to the needs of the patient and the demands being placed on the CHCP.

Accordingly it is further recommended:

- (11) that a progress evaluation be conducted at regular intervals on all patients who require more than one month of service, and decisions made regarding the continuation of their care in the program in light of their needs and the demands being placed on the CHCP.

The study also indicated that many patients requiring long term care were elderly and/or chronically ill who needed some supportive services to avert or postpone hospitalization. After the acute phase of their illness has passed, many of these patients would no longer need services on the individualized basis provided

by the CHCP but still required treatment which could be provided on a group basis if such a service was available. If this type of program was set up in conjunction with a CHCP in which staff and facilities were shared, then economically it would provide more efficient utilization of personnel time, money, and facilities; and also assist in continuity of patient care. It is suggested:

- (12) that consideration be given to establishing a CHCP in conjunction with a service centre where patients no longer requiring the individualized care of the CHCP could have services continued on a group basis; and
- (13) that staff and facilities be shared between the two programs.

Owing to the complexity and multidisciplinary services involved in a CHCP there would seem to be a substantive need for people with expertise in these specialized areas to be available on a consultative as well as a permanent basis. If this is in fact true, consideration should be given to:

- (14) having an advisory committee composed of experts in the services involved in the CHCP assist in the policy making and evaluation of the program services; and
- (15) employing a person with advanced training in health services administration as director, because of the administrative complexity of the program.

If a program is initiated in Edmonton, regular evaluations should be conducted as to the usefulness of the CHCP in relation to the more appropriate utilization of institutional beds. It is therefore recommended on the basis of a CHCP being established in Edmonton:

- (16) that a systematic evaluation of hospital bed utilization be conducted by the Alberta Hospital Services Commission at regular intervals, to determine if the CHCP did, in actual fact, influence length of stay and bed utilization in the hospitals.

If CHCPrograms are being considered for other communities, it would seem advisable to assess the need before initiating the program. To obtain more comprehensive study results, not only should the questionnaire used in the present study be included, but in addition the assessment of the home and the attitude of the patient and his relatives toward this mode of treatment should be considered. This broader approach would provide a more detailed estimate of potential referrals. It is therefore recommended:

- (17) that before CHCPrograms are approved for other communities a study be conducted to determine the extent of the patient demand and service requirements. The study should include not only the use of the questionnaire from the present study, but also include the assessment of the home, and the attitude of the patient and his relatives toward such a program.

If the present questionnaire is utilized in other studies, minor modifications would be advisable. These would include (1) asking if the selected patient was a likely candidate for a CHCP, and if not, then the remainder of the questionnaire could be disregarded; (2) dichotomizing the response to "agree" and "disagree". Both of these modifications would facilitate data collection and analysis. Hence the suggestion is made:

- (18) that modifications be made in the questionnaire to negate the need for completing the entire questionnaire on non-eligible patients and to facilitate the answering of questions.

Since this was not a feasibility study to determine whether the program should be centralized or decentralized, and did not investigate the relative merits of a community based, vis-a-vis, a hospital based program, no recommendations can be made. However, decisions will have to be forthcoming in these areas before instituting a CHCP in any community.

The increasing emphasis being placed on health is causing considerable pressure on health care facilities and personnel across the country. Unless other methods are instituted to relieve or redirect these demands for service, health care of patients will suffer and/or costs will continue to rise. One such method which has proven to be a valuable addition to the health care delivery system in other communities is the co-ordinated home care program. If the findings of the present study are valid, then it can be assumed that many people in Edmonton would benefit from the services provided by a CHCP, both from the standpoint of reducing lengths of hospital stay and by averting admission. Thus a CHCP has the potential of affecting the utilization of institutional beds as well as providing a needed service. It is now the task of government officials and community planners to decide whether patients in Edmonton are being provided the necessary care in the most appropriate and economic way possible.

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APPENDIX A

Letters

To Hospital Administrator

To Medical Director

To Medical Staff



P.O. BOX 2222
9912 - 107 STREET, EDMONTON, ALBERTA
TELEPHONE 425-1810 AREA CODE 403

December 7, 1971

The attached carbon copy of a letter sent to the Hospital Administrator will serve as an explanation of a study proposed for your hospital.

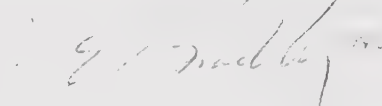
The Medical Director is asked to cooperate in the study by notifying the medical staff of the proposed study and requesting their cooperation in completing the questionnaire. It is vital to the study that the participation of the medical staff is obtained.

If it would aid you in your task of notifying the medical staff the enclosed letter could be circulated to them.

If you have any questions pertaining to the proposed study please do not hesitate to contact Mr. L. L. Wilson at the Alberta Hospital Services Commission or Patricia M. Hay at 439-3684.

Enclosed is also a draft copy of the questionnaire to be used and the instructions to be provided to the physician.

Yours sincerely,


/J. E. Bradley, M.D.,
Chairman.

JEB:prh
Enc.

c.c.: Hospital Administrator.



AHSC

ALBERTA HOSPITAL
SERVICES COMMISSION

86

P.O. BOX 2222
9912 - 107 STREET, EDMONTON, ALBERTA
TELEPHONE 425-1810 AREA CODE 403

December 7, 1971

A study, supported by the Alberta Hospital Commission, on the needs of hospitalized patients for services of a Coordinated Home Care Program in Edmonton is proposed for four general hospitals in Edmonton. Since the results of this study are likely to be of benefit to physicians, the medical staff of the hospital are asked to give their support and cooperation to the study.

It is proposed that discharged patients be used to obtain the sample for the study with the physician of the randomly selected patients being asked to complete a short questionnaire. A Pilot Study is proposed for late December and the main survey is planned between January 12 - April 10. It is anticipated that only 5 - 15 physicians will be involved in completing a questionnaire on any one of the selected survey days.

It is most vital that you, the physician, give your support to the study since its success or failure depends on you. The investigator, Patricia M. Hay, a second year student in the Masters of Health Services Administration Program, University of Alberta, will be contacting you at a later date. It is hoped you will give her your cooperation.

In the meantime if you have any questions concerning the proposed study, please contact your Medical Director or Hospital Administrator.

Yours sincerely,

J. E. Bradley, M.D.,
Chairman.

JEB:prh



P.O. BOX 2222
9912 - 107 STREET, EDMONTON, ALBERTA
TELEPHONE 425-1810 AREA CODE 403

December 7, 1971

A study, supported by the Alberta Hospital Commission, on the needs of hospitalized patients for services of a Coordinated Home Care Program is proposed for four general hospitals in Edmonton.

It is proposed that discharged patients be used to obtain the sample for the study, with physicians of the randomly selected patients being asked to complete a short questionnaire pertaining to those patients.

In order for the study to be carried out, the investigator will need the cooperation of certain members of the hospital staff and easy accessibility to discharge lists and patients' charts. Information about individual patients and physicians will be kept confidential and no names will be used in the report of the study.

Tentatively, a Pilot Study is planned for late December, with the main study being conducted between January 12 - April 10 on twenty-one (21) randomly selected survey days.

The investigator will be Patricia M. Hay, a second year student in the Masters of Health Services Administration program, University of Alberta. We would ask that when she contacts you that you give her your full cooperation as the findings from this study are likely to be of real benefit to the participating hospitals. A summary of the complete findings will be provided each participating hospital.

- 2 -

Meanwhile, should you have any questions concerning the study, feel free to contact either Mr. L. L. Wilson, Commissioner for Hospitals at the Alberta Hospital Services Commission or Patricia Hay at 439-3684 or through the M.H.S.A. offices 432-6407.

Attached is a draft copy of the questionnaire and the instructions to be provided to the physician.

Yours sincerely,

A handwritten signature in dark ink, appearing to read "J. E. Bradley, M.D.", with a stylized flourish at the end.

J. E. Bradley, M.D.,
Chairman.

JEB:prh
Att'd.

c.c.: Medical Director

APPENDIX B

Study Information
Questionnaire Instructions
Questionnaire

Date _____

Attention Dr. _____

Your patient has been chosen by random selection to be included in the Coordinated Home Care Study presently being conducted under the sponsorship of the Alberta Hospital Services Commission.

Would you please complete the attached questionnaire at your earliest convenience and return it to the Medical Records Department of the Hospital.

Identity of physicians and patients will be kept confidential.

A summary of the findings will be supplied to your medical staff.

Thank you for your cooperation.

Patricia M. Hay
Research Project Director

INSTRUCTIONS FOR PHYSICIANS

DEFINITION: COORDINATED HOME CARE PROGRAM

A Coordinated Home Care Program is one that has a central administrative body and through coordinated planning, evaluation, and follow-up procedures provides for medical, nursing, social, and related services to selected patients at home.

ABBREVIATIONS: CHCP Coordinated Home Care Program
 CHC Coordinated Home Care

CRITERIA TO BE USED TO ASSESS ELIGIBILITY FOR REFERRAL:

- (1) The patient's condition is such that he can be treated at home using the services of CHCP.
- (2) The patient cannot be adequately treated as an out-patient because of the type or degree of illness or disability.
- (3) The patient requires services which would be available through a CHCP. Example: nursing, physio, homemaker, meals on wheels, drugs, equipment, surgical supplies, etc..

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE:

- (1) Indicate DIAGNOSIS ON DISCHARGE in PART I
- (2) Complete PART II and PART IV
- (3) Complete PART III only if you would have referred this patient to a CHCP.

Please indicate by a check ☒ the response you think is appropriate.
FOR EXAMPLE: Statement 5 reads:

I do NOT believe that the availability of a CHCP would have changed the length of hospitalization for this patient.

Strongly Agree
 Agree
 Disagree
 Strongly Disagree

✓

ARE YOU IN FAVOR OF A COORDINATED HOME CARE PROGRAM IN
EDMONTON?

YES

NO

PLEASE NOTE

Although you may be in favor of a Coordinated Home
Care Program for Edmonton, please answer the following questions
after considering its value for this particular patient.

QUESTIONNAIRE RE: PATIENTS' NEED FOR SERVICES
OF A COORDINATED HOME CARE PROGRAM

Survey Date: _____

Hospital: _____

Survey Number: _____

PART I

- (a) Name _____ (b) Admission Date: _____
 (c) Address _____
 (d) Age _____ (e) Sex _____ (f) Marital Status: M ___ W ___ S ___ Sep. ___ D ___
 (g) Physician _____



(Please indicate)

(h) DIAGNOSIS ON DISCHARGE _____

PART IIPlease Check Appropriate Box ☒

- (1) This patient did NOT require CHC
 Services at the time of his present
 discharge.

Strongly Agree

Agree

Disagree

Strongly Disagree

- (2) I believe this ADMISSION might have
 been averted if the services of a
 CHCP had been available.

Strongly Agree

Agree

Disagree

Strongly Disagree

- (3) I would have DISCHARGED this patient
 EARLIER if services of a CHCP were
 available in Edmonton.

Strongly Agree

Agree

Disagree

Strongly Disagree

- (4) If you agree with statement #3
 (above) estimate how many DAYS
 earlier he would have been dis-
 charged.

1 - 3 days

4 - 6 days

7 - 9 days

10 - 12 days

13 - 15 days

more than 15 days

- | | | |
|---|--|--|
| (5) I do NOT believe that the availability of a CHCP would have changed the length of hospitalization for this patient. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (6) I would have referred this patient to a CHCP at the time of his PRESENT DISCHARGE if services were available in Edmonton. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (7) I may have been able to keep this patient at home if CHC Services were provided for him. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (8) If you would have referred this patient to a CHCP at any time during his PRESENT ILLNESS please estimate the number of WEEKS he would require services. | Less than 1 week
1 Week
2 Weeks
3 Weeks
4 Weeks
5 Weeks
6 Weeks
More than 6 Weeks | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (9) If you have indicated that more than 6 weeks of services are required, please estimate number of WEEKS. | _____ Weeks | |

IF YOUR PATIENT WAS ELIGIBLE FOR HOME CARE SERVICES COMPLETE PART III AND IV.
 IF YOUR PATIENT WAS NOT ELIGIBLE FOR HOME CARE SERVICE COMPLETE PART IV ONLY.

PART III ONLY COMPLETE IF PATIENT WAS ELIGIBLE FOR HOME CARE SERVICES

(10) Indicate services patient would require from a coordinated home care program.

CHECK

- (1) ☐ Supervision by Physician
- (2) ☐ Visiting Nurse Services
- (3) ☐ Physiotherapy
- (4) ☐ Occupational Therapy
- (5) ☐ Housekeeping or Home Help Services
- (6) ☐ Social Worker Consultation
- (7) ☐ Nutritionist Consultation
- (8) ☐ Meals on Wheels
- (9) ☐ Prescription Drugs
- (10) ☐ Dressings
- (11) ☐ Appliances (ex. Prothesis, colostomy bags, etc.)
- (12) ☐ Equipment (ex. special bed, wheel chair, walker, etc.)
- (13) ☐ X-rays at periodic intervals
- (14) ☐ Laboratory Services
- (15) ☐ Transportation required for treatment, assessment, etc.
- (16) ☐ Services requiring personnel with specialized training
(ex. nurse with psychiatric training) Please indicate
type of specialized service
(16a) _____
(16b) _____
(16c) _____
- (17) ☐ Other services needed, not mentioned above. Please
indicate
(17a) _____
(17b) _____
(17c) _____

PART IV PHYSICIAN COMMENTS RE QUESTIONNAIRE AND PROPOSED SERVICE:

THANK YOU FOR COMPLETING THE QUESTIONNAIRE. PLEASE RETURN IT TO THE INVESTIGATOR
OR HAVE IT SENT TO THE MEDICAL RECORDS DEPARTMENT OF THE HOSPITAL.

APPENDIX C

Physician Comments

APPENDIX C

Part IV of the questionnaire was provided for the physicians to comment on the proposed service as a whole as well as to express their opinions of the survey. Approximately half of the questionnaires contained comments in this section. No attempt was made to analyse statistically the information provided; however, the questions raised, comments made, and suggestions given regarding the proposed CHCP provide some beginning insights into the attitudes that might be anticipated from the physicians if a program were established in Edmonton, as well as help to direct attention to factors that will require further consideration, and suggest areas for further research.

Many comments indicated an understanding of the purpose service. Remarks were generally pertinent and showed considerable foresight on the part of the physicians. A lack of knowledge about CHC Programs and/or misconceptions as to how a program functions were at times in evidence.

Some physicians included comments directed toward the survey sample selection method. In large part, the comments (see pp. 104-105) seemed to reflect a lack of knowledge on the part of the physicians with regard to the principles of random sampling rather than constituting substantive criticism of the research design per se.

Statements such as: "service urgently needed", and "proposed service has great merit", or variations thereof, were the most frequently occurring comments.

Remarks are categorized below into four major divisions:

(1) general comments, (2) remarks directed toward special categories of patients: (a) obstetrical and gynecological patients, (b) patients with eye, ear, nose or throat problems, (c) psychiatric patients,

(d) geriatric and chronic disease patients, (e) patients with genito-urinary problems; (3) comments on the method of sample selection; and (4) remarks directed toward the questionnaire.

The comments quoted are considered to be a representative selection of the total remarks made. All unique comments are included, but because of the frequent repetition of statements made in support of the program, only a few of these remarks are presented.

Physicians' Comments Regarding Proposed Service

General Comments

"Service urgently needed."

"I am in favor of CHCP and plan to utilize [it] ... more extensively in the future. I feel it has a definite place in dealing with selected types of cases."

"This case (specific) does not apply to a CHCP. I am definitely in favor of a CHCP to the vast majority of other cases."

"... [the] proposed service would be great value, and I would certainly make use of it for some of my patients." [Common Remark].

"Will be of value."

"I am in favour of CHCP in principle because a need in many instances exists where such a programme is of benefit. I also think that such a service could be easily abused in practice."

"I don't like central administrative bodies - they are generally inefficient and divorced from reality. There are enough services presently available - the only requirement is that they be made more generally known to interested parties, e.g. G.P.'s."

"I don't know anything about it [CHCP]. I would need more information."

"Who would provide the medical services in this co-ordinated program?? What are 'related services'?? Who is the central administrative body responsible to??"

"Costly?"

"Seems a good idea for patients with long term convalescence."

"I feel services would be very good as outlined."

"Proposed service may prove to be beneficial to the efficient use of acute hospital beds."

"I think the program is necessary, vital, essential and should be instituted forth with."

"I can anticipate some use for this service."

"... would be helpful to many patients with subacute or chronic illness."

"Suggest CHCP be hospital based for optimum coordination of services."

"It would be helpful if one knew under whose auspices such a service would be established."

"Proposed service would be a good addition to medical care in Edmonton."

"Would be very useful but on the whole most patients prefer to go to hospital. Perhaps some form of simpler hospital-type establishment could be made available."

"Not really necessary. V.O.N. can do this service in the rare case which requires CHC."

"This patient in the future may well benefit from such a program."

"Proposed service would be of value in decreasing occupancy and length of stay in active treatment hospital beds."

"Not sure of this service."

"Good idea. Need in Alberta more professionals as well as buildings and plans. We have always been strong on the latter."

"This could be an excellent service for many kinds of patients and conditions."

"There are cases where such a service may be beneficial. I wonder how this service would be compared to V.O.N. I suppose there are some things that V.O.N. would not be able to provide that CHCP could."

"... I wonder how much advantage this [CHCP] would really provide over existing services such as V.O.N."

"I am in favor of this type of service as long as it does not become administration heavy or is too [sic.] difficult for a physician to arrange and direct its services."

"There is a need for this service without doubt, but I wonder if the cost of organizing and continued co-ordination of the various services will not be greater than the increased use of active treatment beds as at present - however there would be better utilization of our presently limited number of beds."

"Proposed service - Definition of CHC too vague for me and smells of too much bureaucracy and interference. People should be encouraged 'to stand on their feet'."

Remarks Directed Toward Special Categories of Patients

Obstetrical and Gynecological Patients:

"Obstetrical patients could be discharged earlier with CHCP."

"Most obstetrical patients require only short stay in hospital and therefore do not require home care services except perhaps visiting nurse service."

"This was a maternity patient who conceivably could go home earlier with household help."

"CHC might be useful to shorten hospital stay of Post-Partum Patients. This is done in other countries - e.g., Great Britain. Some of their patients go home within 48 hours - with help."

"If CHCP were available I believe the usual 7 day post partum as practiced in the ... hospital could be shortened."

Psychiatric Patients

"Extremely valuable project, time saving, eliminates duplication of services, helps a lot in crisis and would help to avoid many admissions."

"Strongly in favor of home care programs particularly in psychiatric cases."

" ... with home services by a psychiatric social service worker, and frequent contact with a diabetic teaching nurse (every 1-2 weeks) and a dietitian at 6 months intervals, this girl could be handled better and with less expense than at present."

"This girl is one of many teenagers that would benefit from a follow-up programme following discharge after treatment of an acute toxic (drug induced) psychosis!"

"This patients' mental state requires periodic and regular help from a psychiatrist Regular (weekly) visits for an indefinite period from a nurse with psychiatric training would probably be of most value... Social worker regular visiting would assist."

"Patient has diabetes and depression.... Can look after herself adequately except during ex-acerbations of her depression which is not predictable. Unless [CHCP] can provide a continuous service I do not think short term or intermittent service is of any help to her at all."

Geriatric and Chronic Disease Patients

"Elderly people would do very well at home in a large % of cases if CHCP available."

"Many people in middle and older age groups... would be discharged more quickly if follow up programme would be guaranteed."

"Those patients who are elderly, and young patients with emotional hang-ups would probably benefit from the service."

"I feel that CHCP would be of value in Edmonton particularly for elderly patients."

"Physical needs could be handled but question value,..., related to his senility."

"Would be glad to have this [service] for an elderly patient who qualifies."

"Hospital stay for maternity patients can be shortened if there is adequate supervision and advice at home."

"Not indicated in normal obstetrics."

"Might have some value in the post natal care."

"In obstetrics and gynecology the only time we would require CHCP would be cancer cases, e.g. terminal."

"She might have benefitted [by] home care during early post partum course."

"In my particular field doubt if this will decrease hospital stay or measurably increase patient care."

"This patient had a tubal ligation. ... She could have gone home 1 day earlier (i.e. 2nd day post-operative rather than 3rd) with help available."

"Keep in mind that if CHC were applied to a significant number of gyne patients - leading to greater patient 'turnover', we could NOT accommodate this extra load in our operating rooms as they presently exist."

Patients with Eye, Ear, Nose, Throat Problems

"There are, ..., many senile post-op. cataract patients who would probably benefit."

"Nursing and special services are minimally required for most eye convalescence. A hotel setting probably best suits many of these patients as long as a nurse is available to administer medicines."

"Child could have been discharged on same day as tonsillectomy, therefore reducing stay in hospital by one day."

"... many keratoplasty patients could probably benefit."

"Very few of the ear patients would need it if any."

"I do not feel CHCP would be indicated in many of the otolaryngological fields."

"Agree with service for long term chronic problems and for elderly patients."

Patients with Genito-Urinary Problems

"CHCP should have a stomal therapist for assistance of patients with urinary drainage via ilial conduit."

Comments on Method of Sample Selection¹

"Random selection picked a poor candidate. I have 30 patients discharged in past 4 weeks who would have been more suitable."

"Better case selection for this project is indicated. This patient requires no home program and this is obvious from the start."

"It would seem that in order to obtain an accurate estimation of the likely value of this service it would be more advisable for a short period of time, to fill out a questionnaire on every admission. This would save time, money and effort in finding the answers to the problem."

"This is a useless procedure as far as this patient is concerned. Perhaps charts should be selected instead of being taken at random."

"This is not a good reference and is not indicative of the need or value of Home Care services. I agree that home care service is an excellent adjunct of treatment."

"[Patient] is simple, straight forward, elective surgical case, irrelevant to questionnaire and may distort ultimate statistics in this field."

"A poor choice. He was in the hospital only four days for diagnostic procedures."

"Unfortunate choice of patient for this study."

"Is this random study adequate to evaluate the total need for home care services?"

"Unfortunately you picked the wrong patient. Most of my patients would be home sooner if such a service were available."

¹I.e., by some of the participating physicians. As was noted earlier (p. 98), in large part these comments seemed to reflect a lack of knowledge with regard to the principles of random sampling rather than constituting substantive criticism per se.

"The random selection of this patient among more than several dozen who could have profited by CHC from my practice makes me doubt very much the value of your survey."

"This case was unfortunately not the proper one for your questionnaire."

"Poor choice. Patient was just in over night."

"Perhaps the patients selected for this survey could be screened in order to obtain an accurate judgment regarding the need for these services."

"Again - you've hit a patient who could not benefit when I've at least 4 in hospital who would benefit from CHCP. Surveys should be done on entire hospital one day out of 10."

Comments Directed Toward the Questionnaire

"Some of the questions seem cumbersome and superfluous."

"The questions are reasonable."

"N.A. should be part of form."

"Information asked could be obtained with half the questions in Part II. The questions are repetitive and poorly organized."

"Agree or disagree are as far as I go, to me strongly does not apply."

"Part II 6, 7 are duplicate in meaning."

"I would have liked more information about the structure of the CHCP."

"Very good questionnaire on a most needed service."

"Questions 5 and 7 are redundant. So is the adjective 'strongly'."

"Most questions not relevant to obstetrical patients."

"... questionnaire adequate to cover the categories. Most of my referrals to CHCP would be of elderly patients with inadequate home care..."

"The questionnaire is interesting but using degrees of agreement or disagreement seems of doubtful value and perhaps is misleading."

"Questionnaire asks repetitive questions. Poorly worded questions requiring double negatives."

"The proposal is of interest, ... , the questions and answers of Part II are of limited validity without more specific proposals."

"'Yes' or 'No' response would be more appropriate responses to most of these questions. A poor questionnaire."

"... your questionnaire contains a great deal of duplication of questions. The whole thing could probably have been done with half as many questions. I am very doubtful if your proposed service will be as efficient or as economical as a centralized service - or will in fact reduce the present patient load."

"Comprehensive questionnaire."

"... Many of the questions are baffling and overlap."

APPENDIX D

Original Instruction Sheet
Pilot Study Questionnaire

[PILOT STUDY ONLY]

INSTRUCTIONS FOR PHYSICIANS

GENERAL INFORMATIONDefinition - Coordinated Home Care Program (CHCP)

A coordinated home care program is one that has a central administrative body and through coordinated planning, evaluation and follow up procedures provides for medical, nursing, social and related services to selected patients at home.

Criteria to be Used to Assess Eligibility for Referral

(1) The patient's condition is such that he can be treated at home by using the services of a coordinated home care program.

(2) The patient cannot be adequately treated as an out patient because of the type or degree of illness or disability.

(3) The patient requires services which would be available through a coordinated home care program. Example: nursing, physio, homemaker, meals on wheels, drugs, equipment, surgical supplies, etc.

INSTRUCTIONS FOR COMPLETING QUESTIONNAIRE

Abbreviations used: CHCP Coordinated Home Care Program
CHC Coordinated Home Care

Please indicate by a check ☒ the response which you think is appropriate.

Example: Statement (5) reads:

I believe this ADMISSION might have been averted
if the services of a CHCP had been available.

Strongly agree	<input checked="" type="checkbox"/>
Agree	<input type="checkbox"/>
Disagree	<input type="checkbox"/>
Strongly Disagree	<input type="checkbox"/>

[PILOT STUDY ONLY]

QUESTIONNAIRE RE: PATIENTS' NEED FOR SERVICES
OF A COORDINATED HOME CARE PROGRAM

Survey Date:
 Survey Number:

Hospital:
 Patient Census:

PART I

- (a) Name _____ (b) Admission Date: _____
 (c) Address _____
 (d) Age _____ (e) Sex _____ (f) Marital Status: M ___ W ___ S ___ Sep. ___ D ___
 (g) Physician _____
 (h) Diagnosis on Discharge: _____

PART II (Please check appropriate box ☒)

- | | | |
|---|---|--|
| (1) I would have DISCHARGED this patient
EARLIER if services of a CHCP were available
in Edmonton. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (2) If you agree with statement (1) (above)
estimate how many DAYS earlier he would
have been discharged. | 1 - 3
4 - 6
7 - 9
10 - 12
13 - 15
more than 15 | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (3) I would have referred this patient to a
CHCP at the time of his present discharge
if services were available in Edmonton. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (4) I do NOT believe that the availability of
a CHCP would have changed the length of
hospitalization for this patient. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |

- 2 -

- | | | |
|---|--|--|
| (5) I believe this ADMISSION might have been averted if the services of a CHCP had been available. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (6) If you agree with statement (5) (above) estimate how many hospitalized DAYS might have been saved. | 1 - 3
4 - 6
7 - 9
10 - 12
13 - 15
more than 15 | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (7) If this patient had been eligible for referral to a CHCP, please estimate the number of WEEKS he would require service. | Less than 1 week
1 week
2 weeks
3 weeks
4 weeks
5 weeks
6 weeks
more than 6 weeks | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (8) If more than 6 weeks of service required, please state estimated number of WEEKS _____. | | |
| (9) I may have been able to keep this patient at home if CHC Services were provided for him. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |
| (10) I do NOT think this patient would have needed CHC Services at the time of his present discharge. | Strongly Agree
Agree
Disagree
Strongly Disagree | <input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/> |

IF YOUR PATIENT WAS ELIGIBLE FOR HOME CARE SERVICES COMPLETE PART III AND IV.
IF YOUR PATIENT WAS NOT ELIGIBLE FOR HOME CARE SERVICE COMPLETE PART IV ONLY.

PART III ONLY COMPLETE IF PATIENT WAS ELIGIBLE FOR HOME CARE SERVICES

(11) Indicate services patient would require from a coordinated home care program.

CHECK

- (1) ☐ Supervision by Physician
- (2) ☐ Visiting Nurse Services
- (3) ☐ Physiotherapy
- (4) ☐ Occupational Therapy
- (5) ☐ Housekeeping or Home Help Services
- (6) ☐ Social Worker Consultation
- (7) ☐ Nutritionist Consultation
- (8) ☐ Meals on Wheels
- (9) ☐ Prescription Drugs
- (10) ☐ Dressings
- (11) ☐ Appliances (ex. Prothesis, colostomy bags, etc.)
- (12) ☐ Equipment (ex. special bed, wheel chair, walker, etc.)
- (13) ☐ X-rays at periodic intervals
- (14) ☐ Laboratory Services
- (15) ☐ Transportation required for treatment, assessment, etc.
- (16) ☐ Services requiring personnel with specialized training
(ex. nurse with psychiatric training) Please indicate
type of specialized service
 - (16a) _____
 - (16b) _____
 - (16c) _____
- (17) ☐ Other services needed, not mentioned above. Please
indicate
 - (17a) _____
 - (17b) _____
 - (17c) _____

PART IV PHYSICIAN COMMENTS RE QUESTIONNAIRE AND PROPOSED SERVICE:

THANK YOU FOR COMPLETING THE QUESTIONNAIRE. PLEASE RETURN IT TO THE INVESTIGATOR
OR HAVE IT SENT TO THE MEDICAL RECORDS DEPARTMENT OF THE HOSPITAL.

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